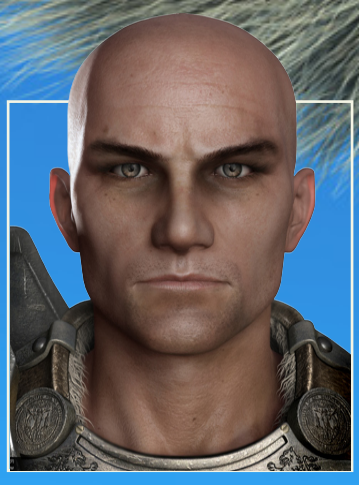
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3dcreative

>>Featuring an Interview with Director Carlos Saldanha and an in depth article on the creation of this Blue Sky Studios 3rd Animated Feature



RICH DIAMANT
>>Lead Character Artist at Naughty Dog Stuios

MIHAI ANGHELESCU
>>3D Modeler for Electronic arts Blackbox

RICHARD MINH LE
>>3d artist at RushWright Associates, a landscape architecture office in Australia

THE SCIENCE OF COLOUR
>>Exclusive Tutorial written by featured artist Richard Minh Le

TEXTURING MASTERCLASS
>>Final part of Low Poly character texturing

SWORDMASTER
>>Part 3 of our complete low poly character creation tutorial - Modeling the Arms and Legs



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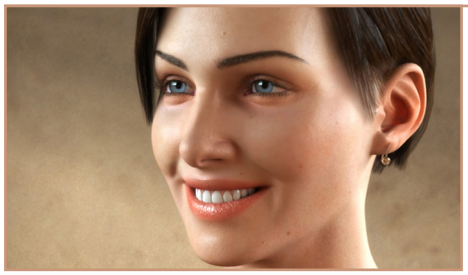
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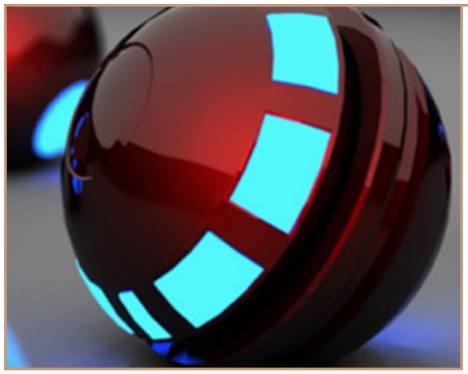
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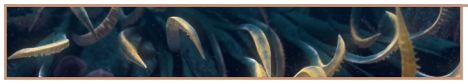
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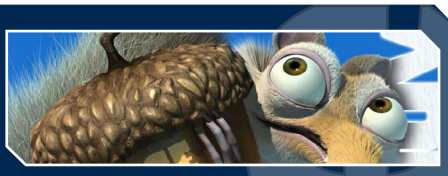
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Welcome

to Issue 11. One more and we will have been going for a full year (who'd a thought it!) Its all thanks to the support we get from you guys. On a similar note we would like to ask that copies of 3DCreative are not put on central servers or shared around as this is beginning to seriously harm the future production of the magazines and we are trying our best to make the mag better every month!

Techniques and Tutorials

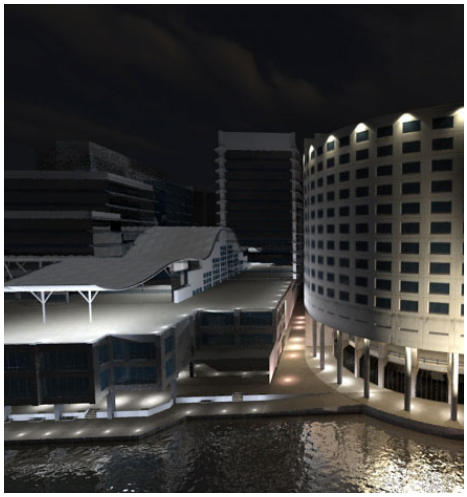
2 Tutorials finish this month, both the Alpine car modeling and the Texturing Masterclass. These will be replaced with new ones next month. If you are following these tutorials please let us know if they are helping! Swordmaster part 3 of 8 and an exclusive 'Science of Colour' tutorial should keep you busy.

Inspiration

We haven't gone totally Ice Age crazy but the new article and interview with director Carlos Saldanha is a must view!

Industry

Some interesting news covering some of the latest CG industry goings on...



About us

Zoo Publishing is a new company comprising of a small team here in the Midlands, UK. This magazine is our first project which we are hoping, with the support of the community, will build into a great resource and a highly anticipated monthly release. The 'support of the community' is an interesting point, where a 'magazine for 3d artists' is not an original idea, the marketing and distribution of this magazine, as far as we know, is a first. It follows the principle of traditional magazines that are sold on news stands and in many outlets, but being a digital downloadable mag the many established web communities on the net are our outlets and newsstands. 3DCreative is supported by

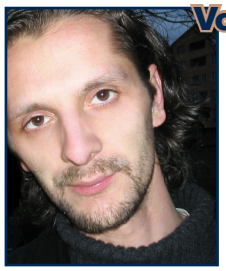


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Vojislav Milanovic



3D modeler, animator, & vfx compositor, Anigraph studio, Self taught all-round 3D guy, started to doodle around in 3D about 8 years ago. In the last 5 years I have done a lot of various things from print and TV ads to gaming & movie graphics.Currently involved in multimedia study & character developing for an animated feature movie. One of my goals is to make my own animated movie

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Luciano Iurino



I started back in 1994 with 3DStudio on MS-Dos as modeler/ texture artist. In 2001 I co-founded PM Studios & I still work for it as Lead 3D Artist. Recently we have developed the videogame “ETROM – The Astral Essence”. I also work as freelancer for different magazines, web-portals, gfx and videogame companies. Recently I left the 3dsmax environment to move on XSI.

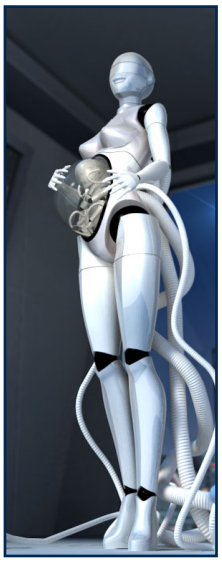
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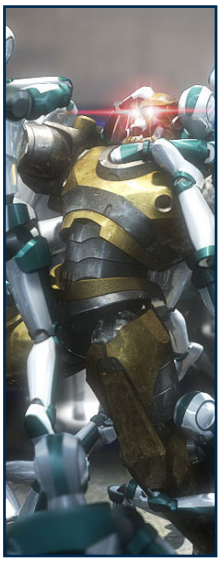
Niki Bartucci



Freelance 3d modeler, Italy. I started working in the field of Computer Graphics in 2000 as an illustrator & web designer. In 2003 I started using 3d software such as C4D & later 3dSMax. That year I worked on ETROM - The Astral Essence, RPG video-game for PC, developed by PMstudios. Currently I’m a freelancer & specialise in commercials. I especially like RPG & RTS video-games.

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Giuseppe Guglielmucci



Freelance 3d modeler / Animator. I began to use computers with the epoch of the vic20 & Cinema4d was my 1st 3d software. I started working in the field of CG in 1999 in commercial design. In 2003 I worked on ETROM - The Astral Essence, RPG video-game for PC, developed by PMstudios. Currently I’m hoping to work in the video-games industry and develop my own game.

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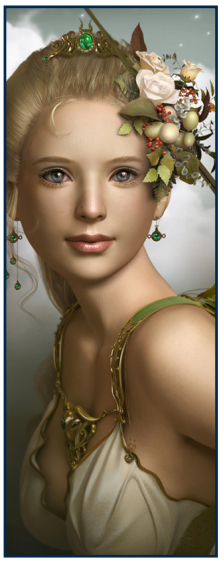
Contributing Artists This Months

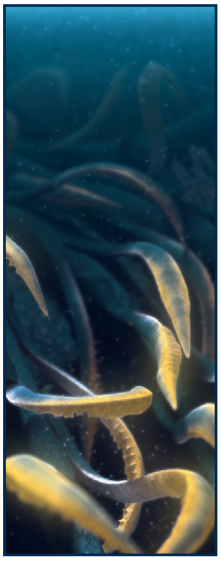


Soa Lee

3D artist> Freelancer> Korea,South> I have been in CG since 1998. At early years I did modeling for animation and was interested in illustration gradually learning 3D. Now I'm working on several fields using 3DSmax as free lance illustrator.

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Jean-Marc Labal



3D modeler/3D animator > Interface Multimedia > Maryland, USA
I started with the first version of 3d Studio Max and Lightwave back. In 1995. Currently I specialize in Lightwave. I mostly work on a lot of architectural projects at work, and do random projects at home for fun.

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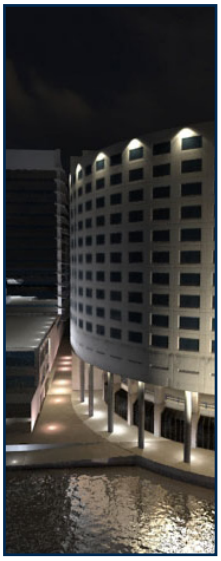


Stepan (o)ne Grakov

2D/3D-Artist, Web Designer, Russia
I started to work with graphics & design when 3D Max (Dos version) was popular. Some time later I got involved in website creations & 2D-design. For last 5 years I'm working in MiMEX as design specialist. Also I'm running russian-language website about ZBRUSH. My free time I try spend with my wife and daughter.

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Richad Minh Le



3d artist, Australia.
Pencil and oil pastel were my only tools until I started my Architecture degree at RMIT, where I was first introduced to 3dsMax and PS. My first professional work that involved texture painting and animation came to me in mid-2004 at SIAL lab. I am now working full-time as a 3D artist.at RushWright Associates.

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The Original Total Texture collection was created in 2001, utilising the best methods and technology of the time. Since then, techniques and technology have both moved forward, and here at 3DTotal we felt that although the original collection is still widely used and highly regarded among artists and studios of all calibers, it was time for an update...

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an interview with
rich
diamant



rich diamant

Hi Rich, Thanks for talking to us. Apologies for the first most obvious question, but how did it all start for you?

No problem! Well let's see. I've probably been drawing and painting for as long as I can remember. So I always knew I'd want to do something related to art. I think I actually wanted to become an architect at some point. Don't ask me why!! Around the time of high school I started getting more into portrait painting, while trying to achieve a very realistic style to my art. I think I've always been more into realism than "cartoony". I actually had one of my paintings tour all of New Jersey, where I'm originally from. It was a very cool feeling! And considering I, like most artists out there, didn't get the best of grades, it finally gave me the confidence to realise that I won't just be one of those starving artist types. I got my first powerful computer in my sophomore year of high school and pretty much everything changed from there. I got heavily into video games and computers in general. I was a big Warcraft and Diablo fan and absolutely fell in love with their cinematics. I think it was then that I realised I wanted to make games for the rest of my life. I am the type of person that goes after what he wants. So, considering I knew that I wanted to make games, I did as much as I could to make that a reality. Computers have always come easy to me. So I knew I had the technical background to learn anything I needed to learn. The hardest part was finding out information. The internet was just starting to get big. The only two choices I remember having for service back then was 'AOL' or 'Prodigy'. Great choices huh!! There really were no cg forums yet. At least not that I knew of. So my only choices really, were to try to figure out what I needed to do on my own.

I begged my parents to buy me some type of 3d software. Again… I knew nothing! So I went to my local computer store and found the only 3d software that was available. Truespace! Well, I tried. It was hard. That's all I'm gonna say about that. With college just around the corner, I did my best to research as much as I could and to find a schooling that would teach me anything that had to do with 3d. Being from the east coast I had some good school options available to me. I got into both the School of Visual Arts in New York and the University of the Arts in Philadelphia. SVA had a really amazing silicon graphics lab but I wasn't too keen on being in New York. So I chose the latter.

During my freshman year, the University of the Arts had started a brand new Multimedia program. It gave me the chance to learn a wide variety of different programs. I also had access to learning my first real 3d package, Softimage 3d. After 3 years in the program I started to have the feeling that I wasn't learning what I needed to learn. The program was tailored towards web page design and multimedia presentations, rather than anything game-related. So I decided to leave school and see what the real world was like. About a week after leaving, I started looking for a job and one sort of fell in my lap. A local game company, Hypnotix, was looking for a 3d guy to help get their cinematics finished on one of their games.





In the interview I remember telling my boss that I would work for free, as long as I get to work on games. That probably wasn't too smart considering the salary they offered me was close to that! Its ok though, I think if I saw the work I showed them back then I wouldn't have hired me! I also made the mistake of wearing a suit to the interview. I got laughed at, a lot, but of course I didn't find that out until about 6 months after I started! Word to the wise, DON'T WEAR A SUIT ON AN INTERVIEW! What did I know? I'm from Jersey! Everyone wears suits to job interviews around New



York! Well, I got the job, soaked up everything I possibly could, got about 3 pay-raises in the course of a year and got promoted to Lead Artist when I was about 22. The rest, as they say, is history!

"With college just around the corner, I did my best to research as much as I could and to find a schooling that would teach me anything..."

And what made you take this career path?

Well, since Hypnotix had a fairly small team, I had the opportunity to work on just about every aspect of the game. It really was great being able to work on both environments and characters. It gave me the chance to understand all of the technical aspects that go into creating a game from every angle. Being on the east coast, however, did limit my knowledge of



how other game companies worked. So when I decided to move on from Hypnotix, I knew I had to decide which area of the game I wanted to focus on. I always enjoyed making environments, but loved making characters. So when I started applying to other studios, I decided to apply as a character artist.

"...I got the job, soaked up everything I possibly could, got about 3 pay-raises in the course of a year..."

What is it about character creation that makes the job so great?

That's a hard question. There are so many great things about working on characters, especially if you get the chance to work on the main ones. For one, your characters get to be the centerpiece of the game, if the game permits. They do tend to get the most scrutiny however, but they also tend to have the greatest reward. I don't think there is any greater feeling then when you hear, "Wow, that character is amazing!"

In my opinion, working on characters has a huge advantage over environments. Because it's just one character, you can really focus all of your attention on one task, not having to worry about a gigantic area to populate. There is also a huge technical side to creating game characters, especially with next generation ones.

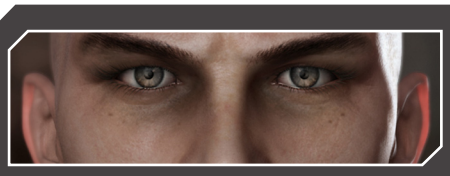




That is one of the areas that I really love. I love figuring out new ways of achieving results and new and more efficient pipelines.

You recently moved to 'Naughty Dog' of Crash Bandicoot and Jak & Daxter Fame. How did that happen?

At the time I was working at NCSOFT in Santa Monica. When I got hired I was supposed to work on the cinematic team. Unfortunately that team only lasted a couple of months. The studio was formed initially as a concept house to handle all of the concepts for studios worldwide. They decided to get a hold of the giant talent pool in LA and see if they could also produce a functioning cinematic studio.

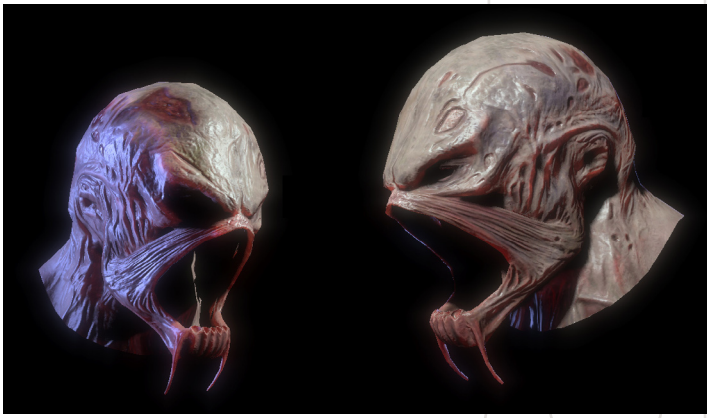


After a series of communication problems, they decided to get rid of the cinematic team after I was there for about 2 months. So anyone that had anything to do with 3d pretty much got laid off, except for me. They decided to keep me around since I had a vast knowledge of games and pipelines in addition to high end cinematic know-how. I was going to help out as much as I could in making sure that their next generation games were up to a certain standard.
I'll tell you, it really was an amazing place to work. The concept team that they had there was probably in the whole, the best I've seen anywhere. I learned so much from just being around those guys. Unfortunately, my role there never got clearly defined. I felt more like an outsider being the only 3d guy and realised that I missed working in an actual production environment. So it was about time to start looking into other options.

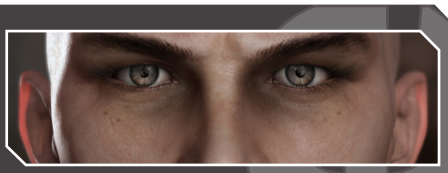


I actually got a hold of the Offset guys after seeing their amazing videos online and was originally supposed to be heading up the character side over there. After months and





months of waiting for deals to be signed and constantly wanting to be back in production, I decided to contact one of my recruiters and see what else was out there. He immediately sent me an opening for a texture/material artist over at Naughty Dog. I really wasn't too interested at first, since I wanted to do more than just texture and materials. But he convinced me to meet with them, since they are known as one of the best companies to work for in the industry.



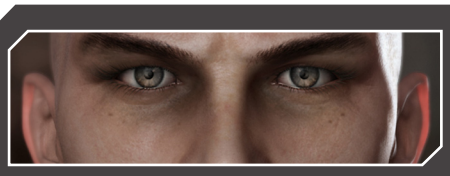
Rich Diamant an interview with

A couple of hours after agreeing to forward them my work, I got a call from Bob Rafei, the art director at Naughty Dog, asking me to come in the next day to interview. I was like, “sure, no problem!” I went on the interview the next day during my lunch break and presented them with some of my newer work that I can’t present online. I also, upon their request, brought in sample files to explain my workflow in more detail. Since I had a limited amount of time, I pretty much ended up doing most of the talking and showing off. I didn’t get a chance to see what project they were actually working on. Since it was top secret, nothing was really available for me to even see! So I left a little disappointed. However, the next day I got a call from Evan Wells, who is the co-owner of Naughty Dog, reassuring me that the position would not be limited to only texturing and shading. I told him I really needed to see what they were working on before I could make any further decisions. So he said no problem, come in tomorrow and he’ll show me everything.
So the next day I went back and Evan and Bob proceeded to show me everything they had. And I must say, I was truly blown away. The technology and plans they had would remove restrictions that hinder other game studios. I had a feeling it would be something special.
After thinking over the offer for a few days, I came to the decision that nothing else even came close to Naughty Dog. I’ve been there for about four months now and it’s been an amazing experience.





What is your main role at naughty dog?
I was initially hired as a character artist but have recently been promoted to Lead Character Artist, in charge of overseeing anything character related. I deal mostly with character pipelines and coming up with both new and innovative ideas. I also get the honor of working on all of the main characters in the game.



How does it compare to previous jobs you have had?

Naughty Dog is on the forefront of technology which allows me to be on the forefront of next generation character development. I've never actually been at a place that is all about setting new standards and has the means of doing so. Naughty Dog also has an amazing relationship with Sony, which allows us almost complete control of how our game turns out. The freedom we have to explore and innovate is truly amazing.

> "...There are so many great things about working on characters, especially if you get the chance to work on the main ones."

What inspires you? (video games, films etc).

Everything really inspires me. I love video games, art, movies, music, computers and technology. If something is new and cool I'm all over it! I also get inspired by the people around me. I'm a very passionate person with my work so anytime I see that passion from someone else, regardless of the field, it motivates me to make a difference. I also try to inspire others around me. I'm all about pushing the envelope and getting everyone else excited to be a part of something special.

Do you get any time for personal artworks any more?

Not as much time as I would like. Its really hard trying to juggle a full time job that is very demanding, a girlfriend 3, 000 miles away, and a family across the country that I'm trying not to miss. Not to mention a social life! Every once in a while I make sure that I get the chance to do some personal work. I think it's an extremely necessary thing. It's the one time I get to really experiment and learn new things without worrying about deadlines. I'm also really big on learning and playing with new tools and programs. I think I'd go nuts if I wasn't able to do at least some things at home.

In addition I am in the beginning stages of working on a series of DVD's with one of my co-workers, Judd Simantov, creator of www.cgmuscle.com, on character modeling and advanced TD work. It hopefully will be something new and extremely valuable to anybody looking to create feature quality work. Hopefully there will be some more information in the near future regarding this. (Blatant sales pitch!)

One piece of professional advice for our readers?

Don't stop learning! The most successful people I've met are the ones who are always on top of their game. They know the latest and greatest methods of working and are constantly trying new ways to enhance themselves as artists. A vast knowledge of tools and pipelines will easily give you an edge over someone else whose knowledge is very limited. This industry is not easy. To be the best, you have to work for it.

Good luck to all and thanks for reading!

Rich Diamant

For more work by this artist please visit:
www.rd3d.com
or contact them at:
rich@rd3d.com

Interviewed By : Ben Barnes



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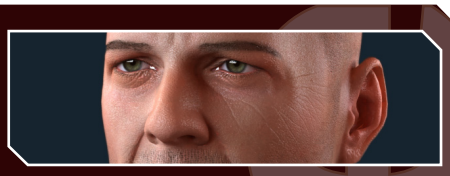
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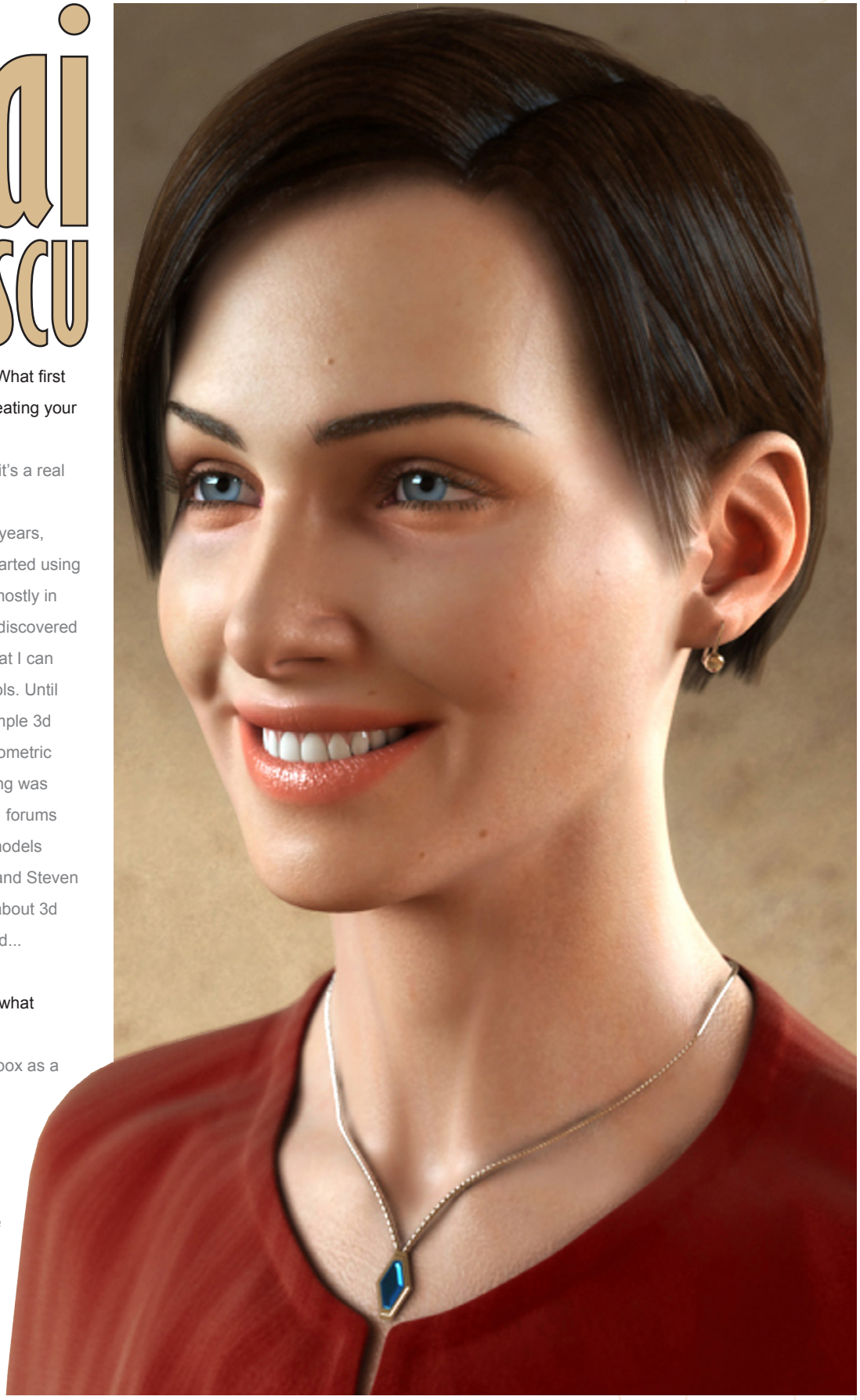
Mihai

an interview with ANGHELESCU

This month we talk with Mihai, a professional 3D Artist who makes amazing photorealistic characters...



Mihai Anghelescu



First of all, welcome to 3DCreative. What first made you choose 3d as a way of creating your artwork?

Hi Ben. Thank you for this invitation it's a real honour for me...

I've worked in 2d graphics for many years, using After Effects and, lately, I've started using a combination between 3d and 2d, mostly in motion graphics packages, for TV. I discovered my passion for 3d when I realised that I can create my own universe using 3d tools. Until then I was just using 3d to create simple 3d objects like 3d texts and abstract geometric forms. My real interest in 3d modelling was born when I found some amazing 3d forums and i was fascinated by 3d human models done by the likes of Petter Syomka and Steven Stahlberg. That changed my vision about 3d graphics and I started to dream in 3d...

Where do you currently work and in what position?

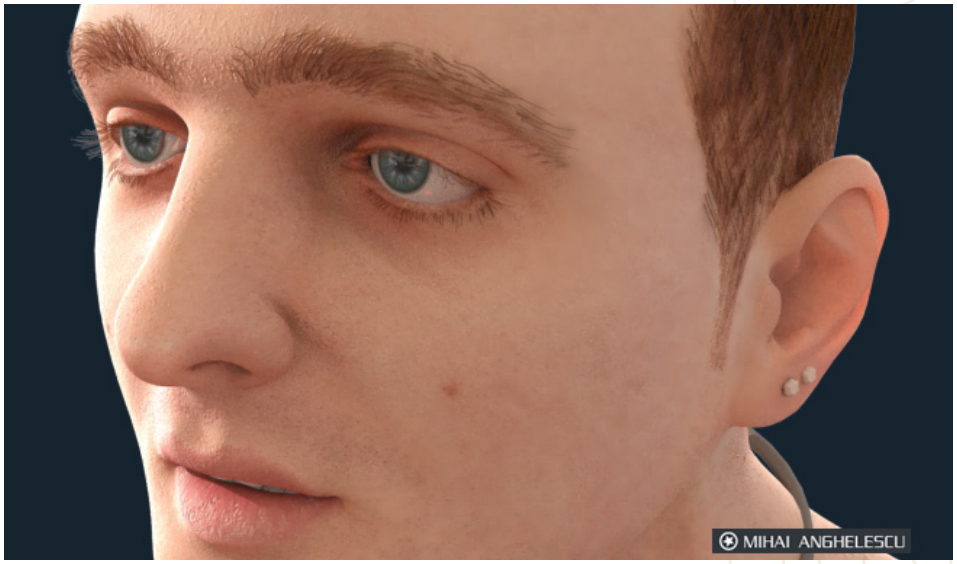
I'm working at Electronic Arts Blackbox as a (3d) modeller.

What projects have you worked on at EA?

I was recently hired by EA, so I have just 5 months here and I'm currently involved in an exciting project. I cant tell too many things about this project but I can tell you that the team involved is one of the best.!

And do you prefer character creation or have you just not tried environment design yet?

Until now, I was pretty much doing what I liked to do in 3d. I experimented with a lot of things but, I was focused more on characters. I've done some environments while I was experimenting with 3d renderings. Many of these are not published on my website because they are just tests. The only environment on my website is currently unfinished. You can see there are some buildings without windows and textures. So, I can say that iIve tried almost everything in 3d, but character creations are my preference.



Which has been the most enjoyable project you have worked on so far?

To be honest I'll tell you that I have liked almost every project...every time I've tried to discover (learn) something new I am always enthusiastic in my approach. If I don't like a project from the start, then it's better to abandon it. But the most important project for me was the first finished human head (Sandra image is on the previous page). I've spent about 3 months researching and testing, plus many hours rendering!

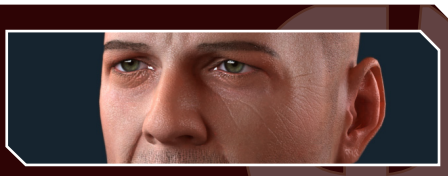


How important are reference materials for your work?

That depends on what I'm working on. If I have to model something realistic then for sure I







Mihai Anghelescu an interview with



will need many (and good) references for any details I want to study. If I'm doing something based on my imagination, then references are already in my mind and more important is a clear idea of what I'm doing. But usually references are very important for me when I'm doing studies like; lighting, proportions, expressions, skin properties, animation etc.

Do you have a dream job in mind?

I think any job done with passion is a dream job. A few years ago, I dreamed of working in a game or film industry... And now, I'm living this dream at EA in a beautiful city named Vancouver. I have alot to learn here and I think that my dream will be complete when the games reach film quality. And I really know that it can be done these days!

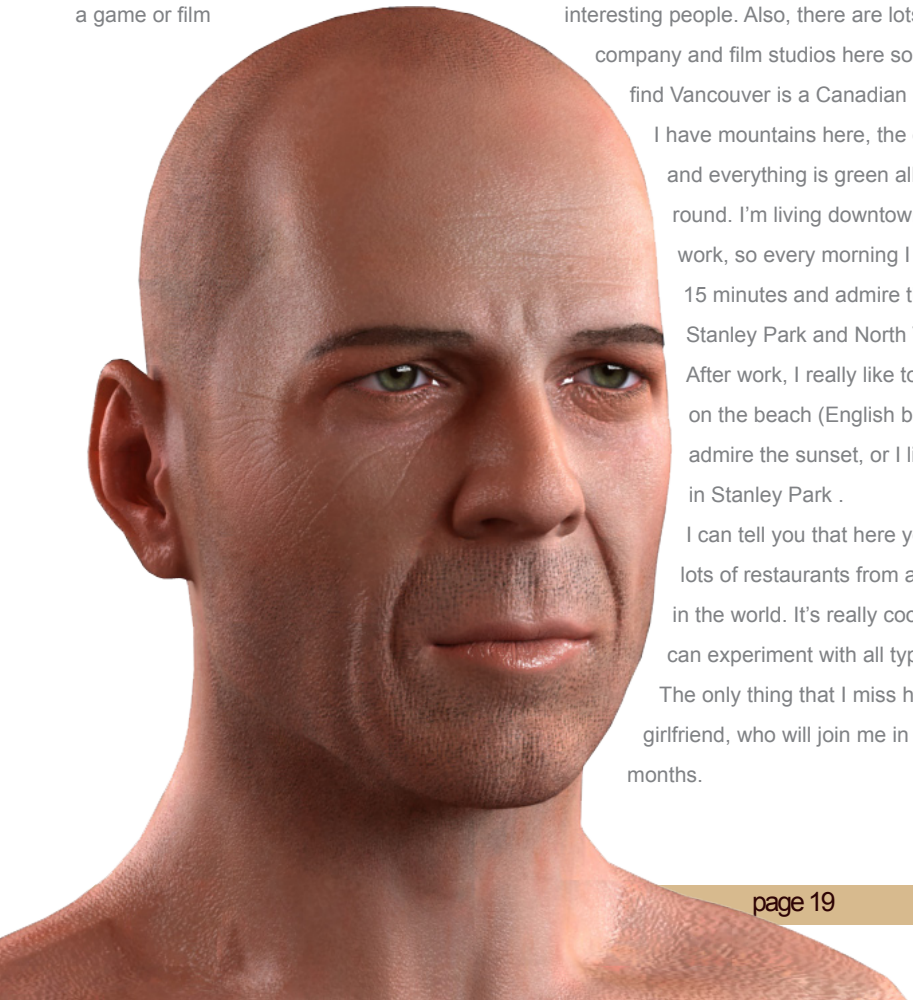
How is Vancouver, I hear its a really good place to work and live?

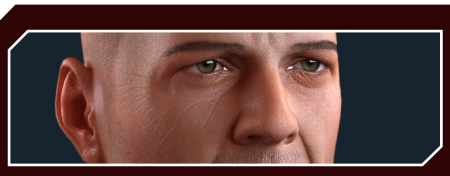
Well, I have only been here for 5 months, so my impressions may be too limited. Vancouver is a nice place. Is a multicultural city with lots of interesting people. Also, there are lots of games company and film studios here so artists will find Vancouver is a Canadian Hollywood! I have mountains here, the ocean, and everything is green all year round. I'm living downtown, near my work, so every morning I walk for 15 minutes and admire the view of Stanley Park and North Vancouver. After work, I really like to sit down on the beach (English bay) and admire the sunset, or I like to bike in Stanley Park .

I can tell you that here you'll find lots of restaurants from all around in the world. It's really cool when you can experiment with all types of food. The only thing that I miss here is my girlfriend, who will join me in about 2 months.









Some of your works have involved creating famous faces, how did these projects begin?

I've started some famous human faces, just to prove to myself that I can do it, and I've used that project to learn more and more. I wanted to model Bruce Willis' face because he has an intriguing face and is very well known by everybody! That way, any mistake done will be very visible (Now when I look at that old model, I can easily see what's wrong with him). After that, I wanted to make a beautiful female face for a 3d contest and the first image in my mind was Monica Belluci, but because the contest had a limited time the 3d model doesn't look exactly like Monica but I've tried to capture something from her beauty.

Mihai Anghelescu

For more work by this artist please visit :
www.xmg.ro/mihai
or contact him at :
mihaianghelescu@gmail.com

Interviewed By : Ben Barnes





This month we talk to Vietamese digital artist,
Richard Minh Le...
...Make sure you check out also his article
entiled 'Colour: part 1 - The Science of Colour'
on page 51



an interview with:

Richard Minh Le

What was it that drew you to studying architecture as a degree?

Well, the main reason why I chose to pursue a degree in architecture comes from my childhood. My parents are architects back in Vietnam; so tracing paper, colour pencils and cardboard models were my playing toys. For a long time, I was conscious about structures and buildings as well as the originality of ideas. With the help of my parents, I slowly, but surely, realised that architecture and other art fields have so many connections. Although I was not sure about having a life-time commitment to architecture, I still decided to do a degree in architecture because I thought it would be great to take it as a base to further explore other art forms. Also, I have no regrets about choosing the architecture program at RMIT University. The way the course is structured is really what I expected: students are engaged to go beyond architecture and think as designers rather than just as architects.

You mention on your website that you have always enjoyed comics and cartoons. Did you ever think of pursuing this interest as opposed to focusing on architecture?

Sometimes, it is kind of strange when what you enjoy watching is not what you end up doing or making. I did actually think of pursuing a career in comics and cartoons, especially after watching The Lion King movie and behind the scenes footage. However, I reckon I lacked the courage and also faced the financial issue of pursuing it. On the other hand, architecture interested me for a long time and I felt much more confident to step in.



How do you think 3D packages, such as Max, have changed the way architects work and visualize their projects?

I can say that I am one of those people who witnessed a revolutionary change that 3D packages have made in the way architects and designers see their projects. Architects, traditionally, worked with physical models. While they are handy and convenient because one can touch and play with them, they present great disadvantages when it comes to time, budget and technical difficulty to realise the designer's particular vision. However, 3D packages like Max allow faster feedback and greater creativeness. This is even more



true when Global Illumination is getting more accessable and less expensive. Architects and their clients nowadays don't have to imagine, but enjoy seeing the reality of the designs even before they get built. At RushWright Associates, a landscape architecture office where I am working as a full-time 3D artist, we are going beyond the traditional method (plan, section and physical model) of presenting our design and looking into GI-based 3D rendering and animation to help our design process and its communication. I believe it is a great breakthrough for us.



"I believe that you can have a great, detailed, well model, textured, but if you fail to light and/or animate it, you fail to breathe life into it."

What aspects of 3D interest you the most and where would you say you are strongest in relation to your 3D skills ?

I am best at lighting and animation. They interest me so much because they are the most powerful areas in 3D that truly create the illusion of life. I believe that you can have a great, detailed, well model, textured, but if you fail to light and/or animate it, you fail to breathe life into it. I think, in relation to my 3D skills, I am strongest at co-operating the strength of each process to achieve the highest level of quality and productivity.

I notice from your portfolio that you have experimented with Vray, Brazil and Mental Ray. Which of the three do you prefer and why?

Well, I was first introduced to Global Illumination when Max6 and its built-in Mental Ray was released. Then, I touched upon Vray because I was so curious about its popularity in the area of archi-viz. I only used Brazil once when I helped a friend of mine who was doing his final-year project. Out of the three, I prefer Vray the most because it is easy to learn and not too hard to master. Vray has many different GI methods that allows flexibility to create desired images in a given timeframe. Irradian map is amazing as you can send out thousands of frames to render without re-calculating it over and over again. Vray, however, is not as strong in photon-mapping as Mental Ray and it would be lovely to see a hybrid in this area. For me, Mental Ray is still hard to use and troubleshoot given that it is the industry standard and capable of creating stunning images. I think I will have to look into it a lot more before feeling comfortable about lighting in the visual effect industry.

You also mention on your website that you have aspirations to work in VFX as well as animation. What type of job would you ideally like to do?

Obviously, I would be interested in lighting and animation which I have the biggest passion for. Beside those, I'd love to get my hands on effects and further develop my matte painting skills.





Which films would you say have been the most successful in implemeting CG and which would you say fail and why?

I would say 'King Kong' and 'Narnia', which have been released since last year, are the most successful in implementing CG. The visual effects for both go beyond the task of creating and enhancing the look of the film, and effectively breathe life into the characters in a unique way. CGI amazingly brings us the world of Narnia and the fantasy characters living within, in particular the work on Aslan and the armies on both sides. The digital actor, King Kong, who doesn't talk, greatly captures the sense of emotion and magnificently helps delivering a story about love to the audience. Perhaps, the Academy Award should have a category of best digital actor? I will be waiting to see that.

I think as long as CG stays as a supporting element and reaches the necessary technical level, it should not fail the movie. For those films I have watched, it is hard to pin-point which fail to implement CG. People talked about 'A Sound of Thunder' - and how bad both story & visual effects are. I, myself, haven't had chance to watch it. Maybe I should...

"I THINK AS LONG AS CG STAYS AS A SUPPORTING ELEMENT AND REACHES THE NECESSARY TECHNICAL LEVEL, IT SHOULD NOT FAIL THE MOVIE."

Does Australia offer many opportunities for anyone wishing to pursue a field in computer graphics, in particular film?

I think computer graphics, especially VFX for film in Australia, is growing dramatically. However, it has a small market and relies heavily on the international one. Therefore, opportunities for anyone wishing to make a break in the industry are rare, as most major studios like Rising Sun Pictures or Animal Logic, only hire senior-level and highly-experienced artists. I think pursuing computer graphics academically is easier in Australia, particularly in Melbourne. The Academy-Award nominated short 'Birthday Boy' created by a graduate from Victorian Center of Art (VCA), and many other local and international awards, were given to RMIT's graduates. For anyone interested in CGI, it would be worthwhile pursuing a degree in either of these two schools. A degree can be a good base to get into the industry.

Apart from architecture what subjects particularly interest you from an artistic point of view?

I do enjoy photography, cinematography, painting, graphic design, animation (obviously!) and visual effects. They all help me to see art in a different way and balance my artistic vision. Also, because film-making and visual effects are highly-collaborative fields, I think having a good understanding of other principles will greatly help me to accomplish my own ambitions.

You have examples of both 2 and 3D work, traditional and digital. What do you feel are the merits of each discipline and do you see relationships between them?

Obviously, there are relationships between them. At the simplest level they both start with nothing and end up together with stunning images at a given timeframe. I feel the merits of each discipline are that each opens up artists to different ways of looking at a shot and how to create it. The techniques of both are cross-transferable and greatly improve the productivity in a project. 3D is taking an important role in the pre-viz process while 2D concept and matte painting remain the key to realising the design and take the final shot to another level.





You have also touched upon Matte painting it seems. What do you think are the most problematic challenges faced by a newcomer when coming from either a 3d background or a purely 2D painting approach?

In my experience a 3D artist faces fewer technical problems than his 2D counterpart because of the tools. However, I think the main problematic aspect of working in this field - no matter what background an artist is from - is how an artist can use his own skill to achieve the highest level of quality and productivity for the final shots. It can take years of intensive practice. In addition, a newcomer will have a problem if he doesn't develop his own artistic vision and truly understand the concept of realism - how a real photo can look so fake. Tools are important but problematic when they overshadow one's artistic ability.

"...NO MATTER WHAT BACKGROUND AN ARTIST IS FROM...[HE] CAN USE HIS OWN SKILL TO ACHIEVE THE HIGHEST LEVEL OF QUALITY AND PRODUCTIVITY..."

Which have been the most enjoyable projects to work on and which have proved the most challenging to date?

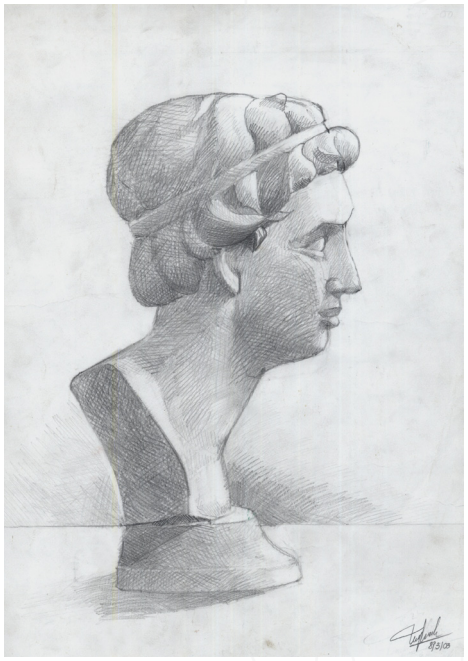
The most enjoyable and challenging projects to me were the two architectural ones I did at school in my second and third years. The first was more science-fictional than the second but they both implemented animation, digital deformation, particle simulation and sound editing as a way of looking at circulation within an urban-scale space and the relationship between different programmatic volumes created by mathematics-driven structures.

Finally what would you like to be doing in five years time?

In five years time, I would love to direct my own short and have more time to write as many tutorials as possible as a way of sharing my knowledge, and help others the way I was helped by artists who wrote great tutorials to get me started.

Thanks for taking the time to talk to us.

You are welcome.



RICHARD MINH LE

For more work by this artist please visit

www.rushwright.com

www.richardminhle.id.au

or contact them at

tradigital_le@yahoo.com.au

Interviewed By :Richard Tilbury



A new dimension for MOTION GRAPHICS



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MAXON



Delve behind the scenes of “Ice Age 2: The Meltdown”, as LeonardoTennozio freflects upon the prequal to acknowledge the advance in Blue Sky Studio’s 3D visual effects in their latest production...

Don’ miss the interview with Director Carlos Saldanha, on page 35, who tells us the highs, lows and surprises encountered whilst directing Blues Sky’s third film “Ice Age 2: The Meltdown”...



ICE AGE THE MELTDOWN



In 2002, Ice Age was presented on release as a full 3D film that, although a bit rough round the edges, with fewer effects than some of its rival animations (the lower quality being partly due to the particular demands of the graphics but mainly to the low budget), was backing its great characterisation and hilarious gags for success. First, we see Scrat the unfortunate squirrel, distracted by the search for his beloved acorns, become the centre of the action, often causing catastrophic damage and sparking off cataclysms (according to chaos theory, the beat of a butterfly's wing in Thailand can set off a tornado in Mexico!). In the first film, the squirrel had his own separate action and adventures but now in this sequel, the humans have disappeared altogether, Scrat plays a much bigger part and his actions are often linked more directly to the main narrative.

This sequel sounds a bitter eco-warning note, alarm bells ringing about our current climate situation, starting with the imminent catastrophic flooding of the valley threatening to wipe out all the leading animal characters: Manny, or Manfred, the mammoth, Diego the sabre-toothed tiger and Sid the sloth, along with all the minor characters, many of whom are making their first appearance, like Ellie, the female mammoth who thinks she's a opossum because she was brought up by a pair of them; Crash and Eddie. These guys get into situations that often raise even bigger laughs than the misadventures of the hapless Scrat. The first film became an immediate box-office smash, grossing nearly 382 million dollars all over the

world, thanks, not least, to its fans putting the word around. On its release, this sequel soon smashed the previous film's box-office record in many countries, among them the US and Italy. All this, leaving aside the fact that the first film "only" cost 60 million dollars and without counting the earnings from very healthy DVD sales, was more than enough to persuade Fox to buy up 'Blue Sky' production studios.
Although Blue Sky's other film "Robots" was still in the completion stage, work began on Ice Age 2 and was finished in the record time of only 9 months, less than the half the time the first film took! While 24 animators created the whole of the first film, the team of artists working on the sequel grew to nearly 70 artists, sometimes producing as many as 150 frames a week, more than double the rate for the first film.
In the meantime, the technology had progressed in such leaps and bounds that, although the main characters looked more or less the same, they had actually been reconstructed from scratch. The meshes had been transformed into a continuous surface with specifiable subdivisions, which did away with the problem of seams, encountered in the first film, and the skeletal structure and rigging controls were better. These new controls really made it possible to produce better characterisation and add new characters with more complex animation, like Tony Fast the armadillo, the opossum couple and the female mammoth, all of whom are able to perform amazing actions at incredible speed. Then there are the prehistoric crocodiles, living beneath the water and representing the insidious internal menace, creeping closer and closer to the main characters as the thaw makes the water rise ever higher, threatening to overflow and drown the valley as the natural ice dam collapses.

Once the new animators joined the production, web pages were set up on the internet giving all the salient features of the characters, the rules to follow for their look and modelling, as well as requests coming straight from the director.
Blue Sky uses Alias Maya, on Linux machines, for modelling and animation in addition to a vast quantity of script and their own in-house modules to extend and specialise the various functions, particularly those related to animation. With these functions, generally using MEL scripting language, they can manipulate curves with Graph Editor, use Constraint and choose from a vast archive of face and body poses. It is already known that Blue Sky has developed its own rendering software, CGI Studio, that has particularly advanced functions for reproducing both open-air and indoor lighting effects. The low-detail Maya 3D models contain both the polygon portion and NURBS of the same model, although CGI Studio only processes parametric subdivision surfaces.

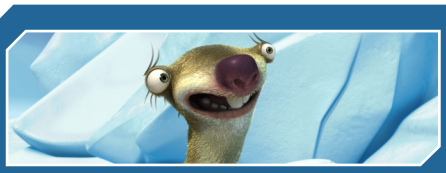


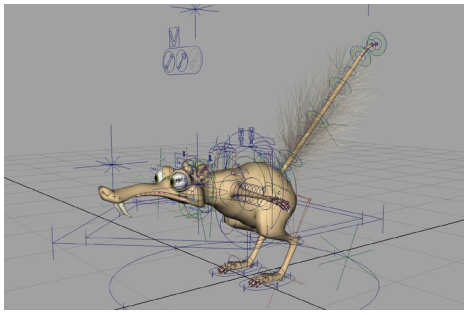


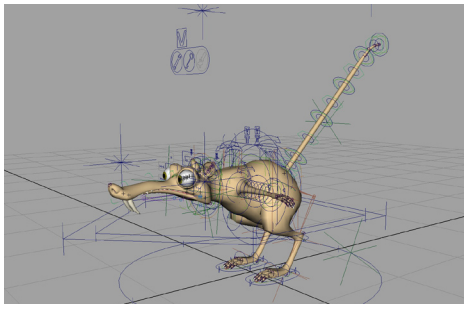




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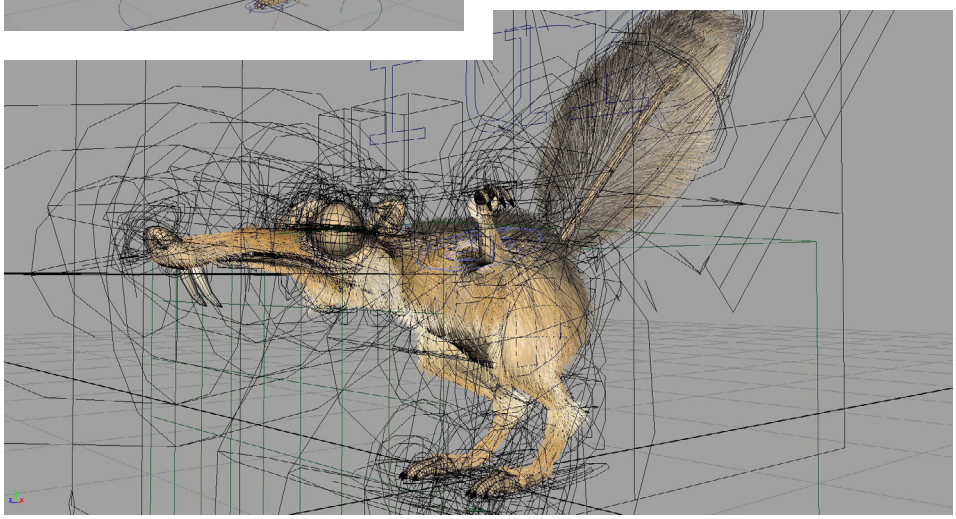




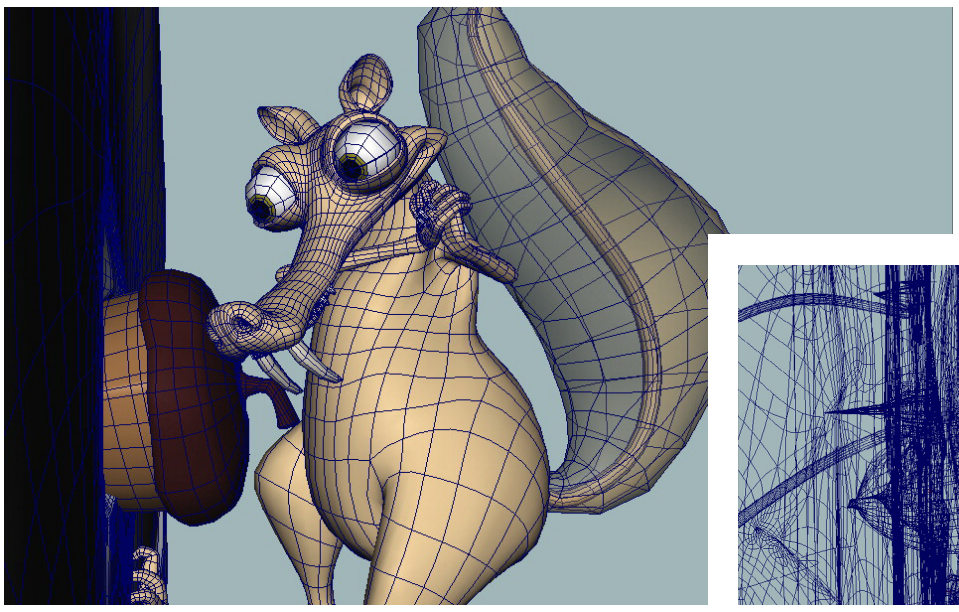


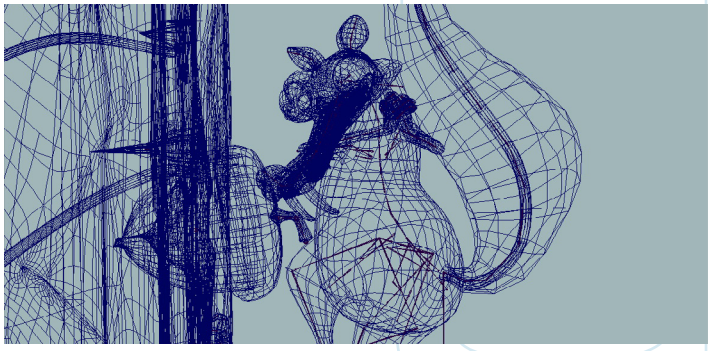
Animating Scrat The Squirrel

Scrat the squirrel is one of the focal points of both films, as well as being the hero of his own complete adventures in the first DVD edition. The French chief animator Aaron Hartline handles the animation and the direct coordination of this vital character. Hartline has a solid background in traditional 2D animation techniques that he applies to 3D, concentrating on the character's principal actions, rather than on the technical details and computer tools. He emphasises how important it is to acquire the basic animation techniques before diving into the complex and often 'all singing all dancing' software developed for 3D animation. He doesn't use Rotoscope retracing techniques on real film but rather he often videos himself mimicking the actions he wants to reproduce in 3D. Hartline considers this a much more useful technique than sketches and drawings for achieving truly realistic animation. Re-running and slowing down the videos also allows him to focus his attention on individual elements of the action and the secondary animations that so often get lost. He has always had a lot of fun animating Scrat, seeing him as a sort of 'Tex Avery' of the CG animation world. No matter how much he gets ironed out, stretched, squashed and generally abused, the squirrel is always in motion! A special feature of his character is how he starts an action then suddenly stops. He is seized by different emotions that also suddenly freeze. The trick is to keep him alive even in these frozen moments, just the twitch of an eyelid or a wink will do it, or making him pant, with simulated breathing. These secondary movements can be added as they are needed. For instance, if he hears a noise, Scrat first swivels his ears, then his pupils follow the direction of the sound. Finally, he may start breathing fast to show his anxiety. Such tiny secondary movements give the character his personality.

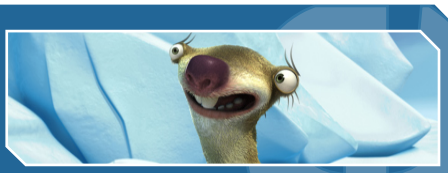


Using real visual references is of prime importance. For Scrat, the animation director went to a park to film a lot of squirrels. He would show these films to the animators and the whole department, to illustrate the type of





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movements he wanted them to achieve. More of the same for Diego, the sabre-toothed tiger and the mammoths, when the animators went to the zoo to watch tigers interacting with each other and watch elephants in their enclosure. There is absolutely no substitute for observing movement directly to capture the spirit and behaviour of a character. The exception to this rule was Sid the sloth, because, in the wild, these animals move so slowly that there is very little to reproduce and direct visual reference would not help define the character's movements. So for Sid, the animators followed the performance of the voice-over actor to provide the movement cues that define the actions.



Character Animation

Character animation is a central aspect of the film, the rigging structure contains various levels of automation but, in general, the animators are able to modify around 900 animation parameters to control the skeletal structure and IK (inverse kinematics). Thus animators can not only control macro-movements but also make more detailed adjustments to the skin or the external covering of the underlying skeletal structure. Contrary to appearances, there are no muscular simulations in the layers directly below the skin. The sense of tension and weight that comes from mass is achieved by adjusting the rigging controls. Compared to the first film, the rigging in this film has been extended to enable the use of 'squash and stretch' techniques that were only seen briefly in the Dodos and Scrat characters. The updated rigging controls automated a number of important animation techniques, allowing them to be used in every part of the body, although squash and stretch has been used more subtly, maintaining the overall volume rather than deforming the bodies drastically, with a tendency to apply this technique more during the







transition and interpolation phases than in the actual poses.
The added complexity of this film led to a reorganisation of the production studio with the introduction of three supervisors and three chief animation coordinators. Even the director, Carlos Saldanha, often acted as supervisor and movement coordinator as he is considered a real all-round animator after directing a number of commercials and co-directing the previous two Blue Sky productions. To maintain high levels of creativity, each chief animator was not assigned a single character, but rather teams of animators worked on complete sequences or shots. This meant that every animator was up against different styles of movement and had the chance to work on different characters in single sequences. This type of approach, which is also used by other production studios such as Pixar, demands an extremely high technical standard from the animators.





Naturally, the sequel also demanded that the look, personality quirks and characterisation of the characters appearing in the first film were maintained, involving careful and precise documentation, especially for the benefit of the new animation team members. In fact, this way of organising operations requires the animators to be constantly moving between the various departments, such as lighting, effects etc. with a great deal of over-lapping responsibility and highly collaborative interdependence.





Managing the individual character poses created by single animators was achieved using a piece of in-house software known as 'Tool Box-to', housing a full collection of poses and facial expressions that could be shared among the various teams of animators.

Finally, a team of 5 people were responsible for overall quality control, signalling any errors or inconsistencies.

Simulating Skin and Fur

The animators had no control over the animation of fur, whiskers and other superficial features. This was because Maya only gave a full-screen representation and also because control of

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the aspect and animation in this specialised field of behaviour was given over to a different department. As most of the animals are covered in fur, this gave rise to a number of problems. For example, the animation of an expression on the bare face of one of the mammoths could easily be interpreted, but once it was covered in fur, the face could become difficult to read. It was only possible to see this after rendering when the guide hair filaments had been replaced by full fur in the final rendering stage. This meant that the animators had to take this covering layer into account throughout the whole animation process. It was particularly important that the movements of the pupils in the eye sockets were not obscured by fur, which would have prevented expressions from being clearly read. In the first film, the fur was added in rendering as a clip map (small image squares seeming to come out of the surface) while in this second film, it was seen to be growing directly on the skin surface layer letting it behave in different ways, such as having a wet effect or having its own set of animations. Properties such as thickness, length, transparency and hair colour are the fundamental simulation variables chosen for each character, from the tip of the nose to the tip of the tail. This required a volumetric generation motor for Voxels, capable of managing millions of hair filaments (B-spline). Thanks to a plug-in known as 'Fur Follow Through' (an adaptation for fur of the animation tool 'Follow Through'), the fur could react not only with what it was connected to, but also to such environmental variables as wind. Another parameter, known as 'Stiction' (a combination of static and friction) could be adjusted to give the fur a certain weight and resistance to friction. Because of the tight schedule, the fur simulator was not used with the function controlling the reaction forces on contact with other surfaces or fur, but the fast deformer, adjusted according to the type of animation sequence, a brilliant solution that avoided adding the prohibitive amount of time needed to compute the automation parameters.

Naturally, the fur simulator was added to the







CGI Studio engine so as to function easily in all light conditions.

Creating the Set

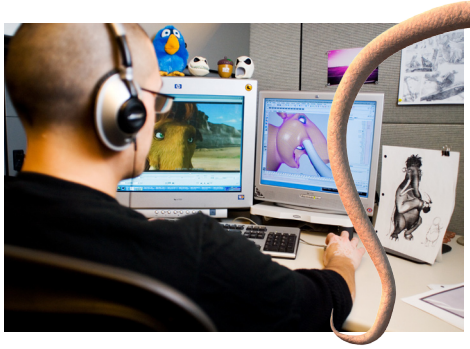
The complexity of the set features, such as vegetation, terrain etc., and the climatic conditions, mainly melting ice and water, had a major influence on the film in that the set itself could be considered a character, given its high level of interaction with the "real" characters. Some scenes involved such incredibly complex interactions as when characters are battling with water, and the complications inherent in swimming and floating.

Simulating the fluid dynamics also required a lot of ad hoc procedural codes but, mainly due to the tight production schedule, the commercially available package, ,RealFlow, from NextLimit, was used. Water and other aspects of the set are often produced using such procedural codes as displacement, already created for Robots, then extended and adapted to the new film. Environmental features like water or ice are problematic for UV mapping in texturing, but using a procedural code allows resources to be optimised and can be perfectly adapted to the art director's demands.

Creating the wide-open spaces required not only extension by rendering in CGI Studio's Global Illumination, but also the clever use of reflected bounce light to create the particular diffused light of open spaces.

The amount of computer power needed in only 4 months meant that Blue Sky had to extend its own render farm, upgrading the architecture by 32 bit, bringing it up to 64 bit (1,000 dual 2.5 GHz processors, nVidia video card and 40 Tbytes of storage capacity). Even with that amount of power, the average rendering time for each frame settled at around 13 hours! CGI Studio is in fact purely a ray tracer engine. The set looks much richer in detail than in the first film but it must be said that, in general, the new film, while maintaining the atmosphere of its predecessor, has made considerable advances in narrative, characterisation and overall production values. The richness and complexity of the characters' movements and the complex interaction with the set make it clear how little this type of film has to fear from the classic 2D productions and it also demonstrates just how far technology can extend and enrich, in some surprising ways, every aspect of the narration and realisation process.









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Leonardo Tennozio
for Imago Edizioni, Italy

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ICE AGE
THE MELTDOWN

CARLOS SALDANHA

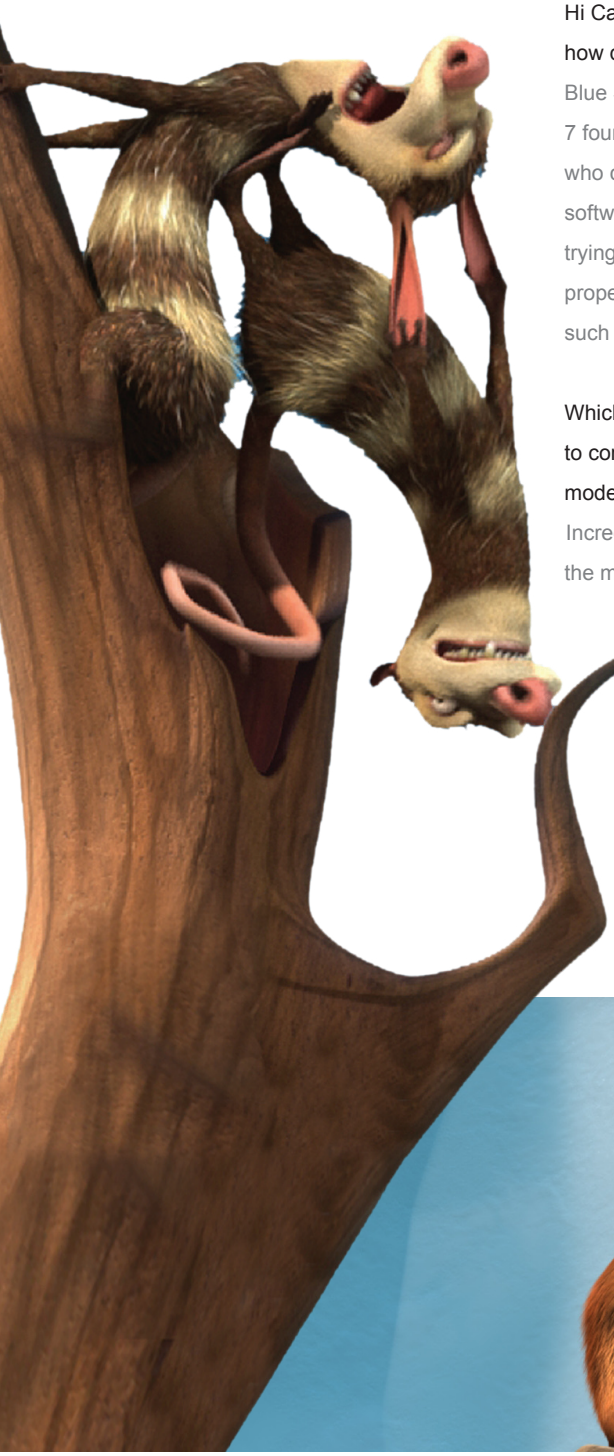
Brazilian born Carlios Saldanha talks to us about directing Blue Sky Studios last animated feature “Ice Age 2 The Meltdown...”







CARLOS SALDANHA



Hi Carlos, Thanks for joining us today. Tell me, how did Blue Sky Begin?

Blue Sky was established 20 years ago with 7 founding members; 4 were programmers who created an extremely powerful rendering software. Since then, we have not stopped trying to perfect it and we continue to develop proper tools to solve our creative challenges, such as the hair and fur.

Which scene of Ice Age 2 took the most time to complete? Was it due to more complex models?

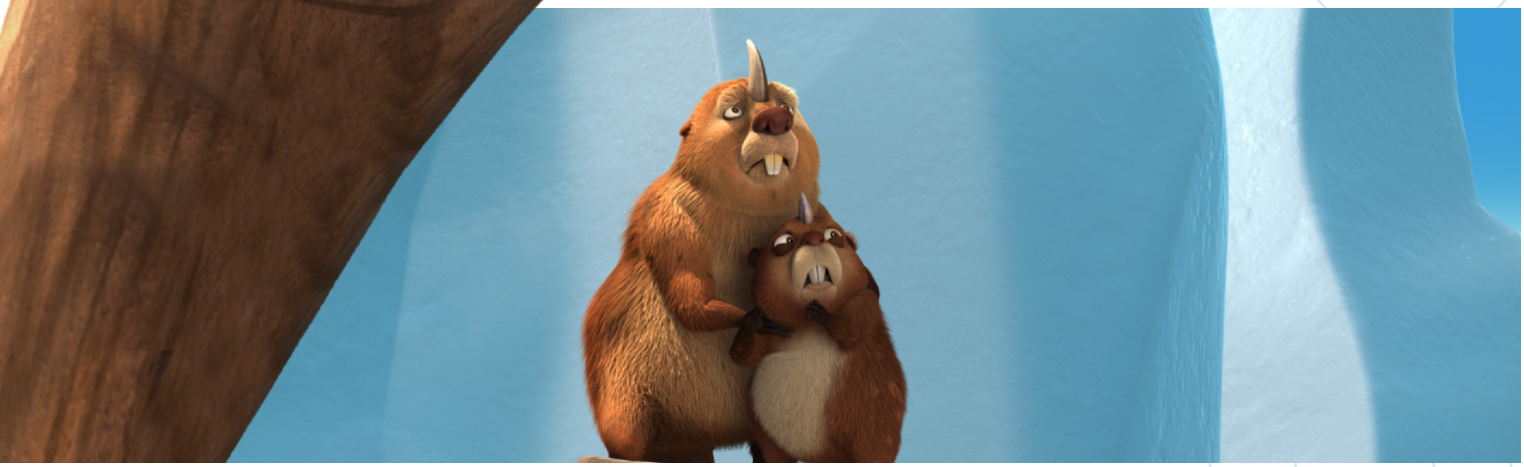
Incredibly, it seemed that the scene that caused the most problems was an extremely simple scene with only one character and a shrub! The motion blur of the shrub took 420 hours to render! We had many similar surprises where simple scenes had taken more time than more complex scenes with special effects and many characters. On average, we measured render times at 15 hours per frame, and in total there are 136,648 frames. In general, the character models were all fairly simple with minimal texturing, The more complex elements being the plants and shrubs, mostly due to the sheer amount of leaves on them.

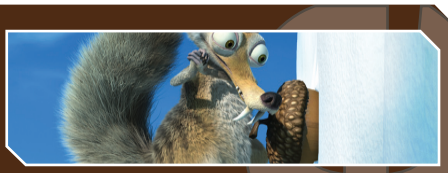
Did you only direct the film or did you play any part in acting for the animation of the characters?

I only directed. My time already was super-pressed and I did not have chance to get my hands dirty! But as director I actively participated in all the stages of development and I followed all the individual processes closely.

How was the directing experience for you? Did you prefer it to working on the modeling, texturing or animating?

I always like to direct as it gives me the chance to participate in all the stages of the production. It also gives me creative freedom to explore new ideas together with the artists. That is very rewarding for me.





Carlos Saldanha an interview with

What new projects are you now working on and are you directing?

Not yet! I haven't had time to think about the next project, but I will certainly be directing again.

How many machines were used, and what was the basic spec for each one of them?

They were PC's, I do not remember the configurations, but I do know there were 486 of them.





How many artists had to work on the movie to get it finished in only 8 months?

We had a team of 60 artists. It is the greatest number of artists I have ever had working on one project.

The fur looks amazing in the movie. Was it created using a Blue Sky system or did you use an existing piece of software?

We already had a system in place, but we did not have the time to implement it for the first film "Ice Age", but as we progressed and improved software, we started to obtain excellent results. Everything was internally developed by our research and development team.

Is the water Real Flow, Maya or a proprietary software?

A little of each. We obtain the best results by mixing several techniques, but the rendering is our own software and is what gives the water it's final appearance in the film.



Who conceived the Scrats concept and scenes?

Our work comes from team creativity and uses many influences. I am the creative leader, and many of the ideas are mine, but we all collaborate. I believe this is the main element of a good production. We all have good ideas to put forward, but the final word is mine!

What was the inspiration behind him?

The inspiration comes from day to day situations, and from personal experience. I also like to observe other people, to gather inspiration from performances and movement. I am always looking out for a good story!

Did you feel that the final result was what you had imagined all along, or did some constraints mean that it had to change?

We could not include all of the ideas we came up with, but we feel that we used the best mix of ideas to give us the best story.

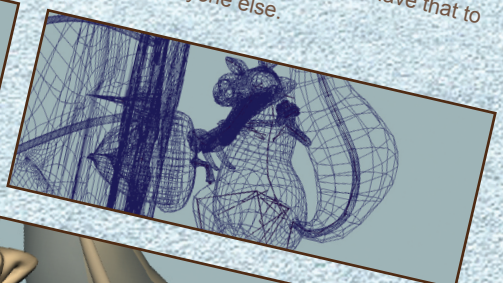
The majority of the big studios ask for a high academic level in comparison to Brazilian standards. What made it possible for a Brazilian artist to enter a studio as tough as Blue Sky?

Talent comes in first place, but for a foreign worker to America for me my diploma was essential for me to attain my work visa. This is what makes it difficult to get a contract. The optimum way is through the universities. The majority of our beginner employees come from Universities and many of them are foreign. With many different skill requirements, being able to pick specialists in each field makes it much easier for them to obtain a specialist work visa.

Currently there is a large market and demand for high quality full length animated feature films using CG. If this should change, what are Blue Sky's plans to combat it?

We have been in the market for 20 years and we still have to fight to get the chances to create animations, and in a way, this forces us the adapt and give ourselves new challenges. At the moment, I can not foresee a decline in CG animation, but if it were to happen we will have that to evaluate our future strategies to face the problem, along with everyone else.







Can the limitation of CG have an effect on the script? Or is it the opposite?

All the creative process has to be evaluated to decide if they can be achieved in CG or not. Virtually everything is possible, but it does take time and money. All production budgets have to be rigidly followed, and sometimes we have to adapt our creative ideas to fit realistically into the budget of the film. However, when an idea is very important, we try to find some form to execute it. Sometimes it can be frustrating as I am always trying to ignore the budget and create the best possible final result.

Merchandising is very important in today's Movie industry. How does it work with the Ice Age franchise?

All our projects belong to Fox and they have total control of the creative material. We create the images, character poses and scenes so that they can use them for marketing toys, posters and other products. The animation industry is only as big as it is today because of the merchandising power of bringing funding for new and exiting projects.

On average, how long does it take to create say 10 seconds of character animation?

It totally depends on the scene but I would say around 2 weeks. This can, however, drastically change depending on the number of characters interacting, etc.

Looking at your career so far, is there anything you would change, or anything you would have done differently?

I don't think of things like that. Whatever decisions you make or experiences you have good, or bad, are always part of learning and improving things. I always look forward and never look back!

After seeing Ice Age 2 I was impressed with the traditional and natural style to the animation.

This is our third film and we always continue to work very hard to perfect the techniques and style of our animation. We are always learning and studying, which is a process that never finishes. We are always trying to surpass the previous level of our work.

Thank you for talking to us Carlos.

Interview By

SEBASTIO P LAGO JNR.

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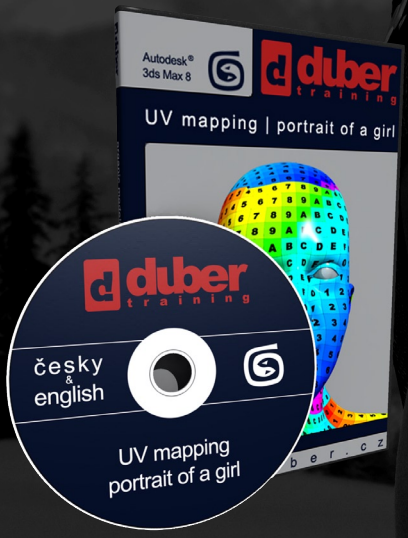
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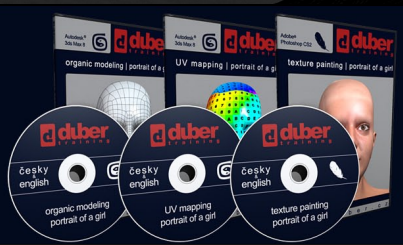
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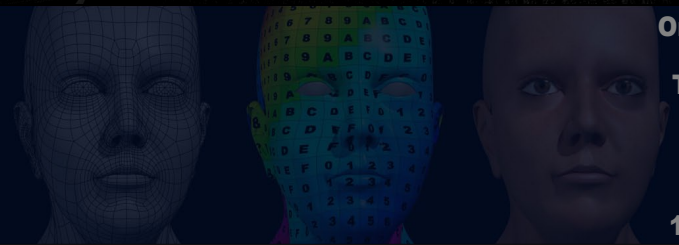


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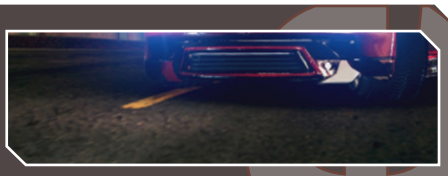
SAN FRANCISCO – Global creative agency ATTIK have detailed their new cinema and broadcast elements of its latest campaign deliverables for Scion. The three 30 second spots entitled “xA Shadow,” “xB Swarm” and “tC Shark” debuted in national broadcast venues on June 5th, and a 60 second version that combines “Shadow” and “Swarm” debuted in theatres across the U.S. on May 26. Each spot was directed by Simon Needham, ATTIK co-founder and group creative director.

“These spots are an innovative, clever, and distinctive way to illustrate the idea of personalization through accessorization, and that inspiration can come from anywhere”, explained Deborah Senior, Scion’s national marketing and communications manager.

“These new spots were inspired by our passionate owners”, added Mark Templin, Scion vice president. “They find inspiration for personalization in the most amazing places. We wanted to celebrate their imagination and creativity.”

Creatively illustrating the notion of “inspiration from anywhere”, each spot begins with a live-action version of one of Scion’s models in a modern city, which is then transformed into a colourful, animated urban environment in which each vehicle customizes itself using elements from its surroundings. Each spot’s action then transforms back to reality, presenting a tricked-out version of each vehicle.

Bringing each spot to life was an amazingly intricate process in itself. Needham and his team, including creative director Wayne Hanson, design director Stan Zienka, copywriter Ariel Lustig and senior producer Michele Morris, began by creating detailed scripts, storyboards



and an artful plan to make each spot shine. After an extensive global search to find the right location, Needham and his crew travelled to Bangkok to film the live-action for each spot, which was photographed with director of photography Daniel Ardilley, who has worked with Needham on several Scion spots in the past.

Cutting-edge animation, a staple of Scion's award-winning broadcast elements, once again took a leading role in these new spots. "Each Scion model has its own personality," Needham said, "so for each of these spots, we sought out a unique animation company to add a distinct look to the respective design elements. Working with the teams at Blind for Shark, Shilo for Shadow and Stardust Studios for Swarm, we provided a lot of guidance up front, and from there, each company gave solid input on creative direction and contributed greatly to the aesthetics of each finished spot."

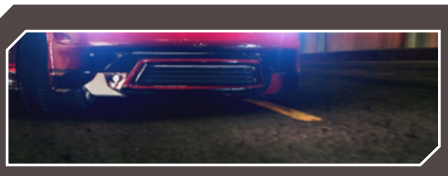
Santa Monica-based animation and visual effects company Hydraulx, famous for its effects work on recent blockbuster films including "Terminator 3", "The Day After Tomorrow", "Fantastic Four," "Poseidon" and "X-Men: The Last Stand", handled extensive 2D and 3D effects on each spot. Also, for the end-shot of each tricked-out Scion, Needham envisioned the use of CGI vehicles, and knew that the addition of environmental reflections was the key to making each animated vehicle look real.











Specifically to support this project, Hydraulx purchased a High Dynamic Range Imaging (HDRI) camera system to capture 360-degree, high-resolution photos of each location, which were then used in the final renders of the CGI Scion models at the end of each spot.
Along with Templin and Senior, Scion's team also includes corporate manager Steve Haag and advertising/media manager Andrea Lim. ATTIK's Scion account director is Charlie Adams, and Joseph Segrove served as assistant producer. Additional credits for live-action production company Hazel Films include executive producer Jamee Natella and line producer Jordon Winter. The music for each spot was composed by artists at bicoastal Face the Music. Full project credits are available upon request.

About ATTIK

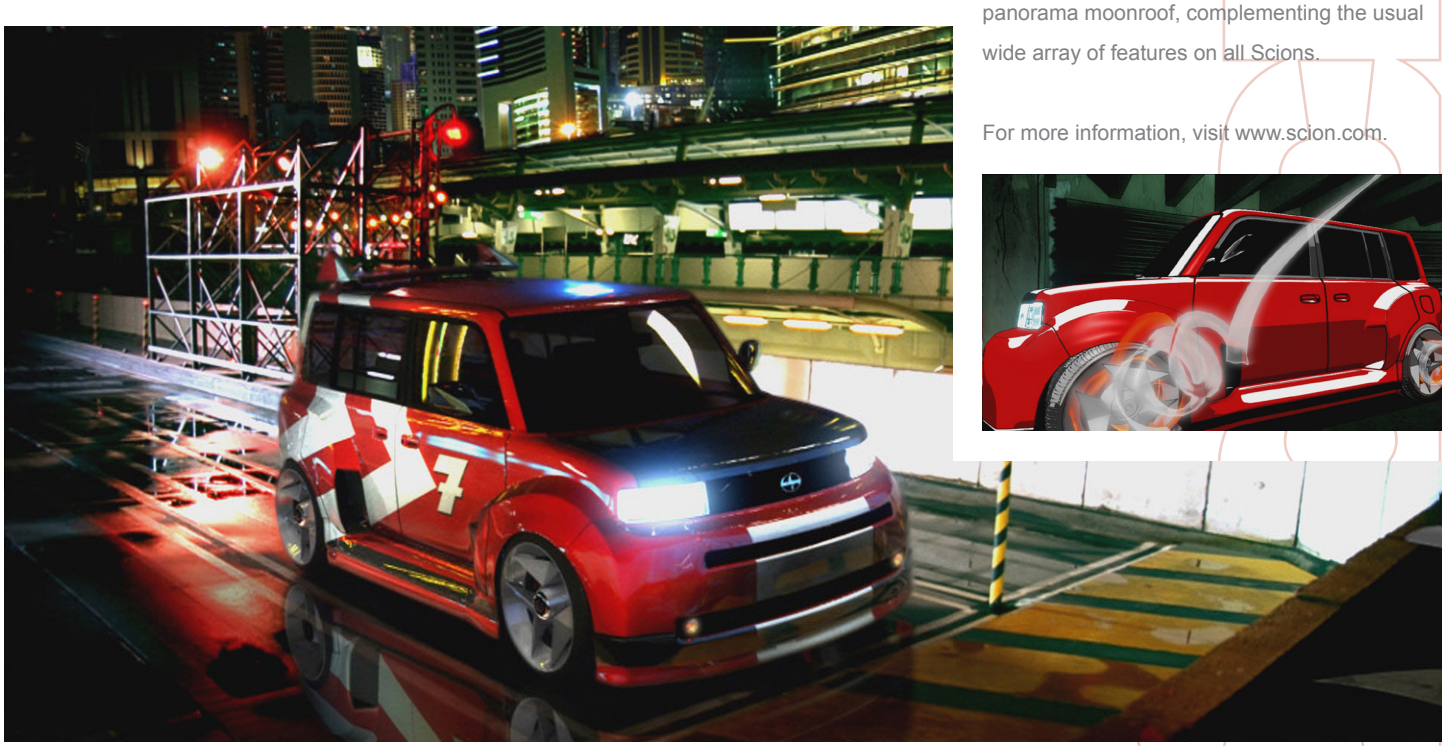
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CODEHUNTERS

Axis go hunting in Asia

Axis Animation, the BAFTA Award winning studio who currently lead the way in Scottish animation, have gone global thanks to their help on the action packed short film, 'Codehunters', for MTV Asia.

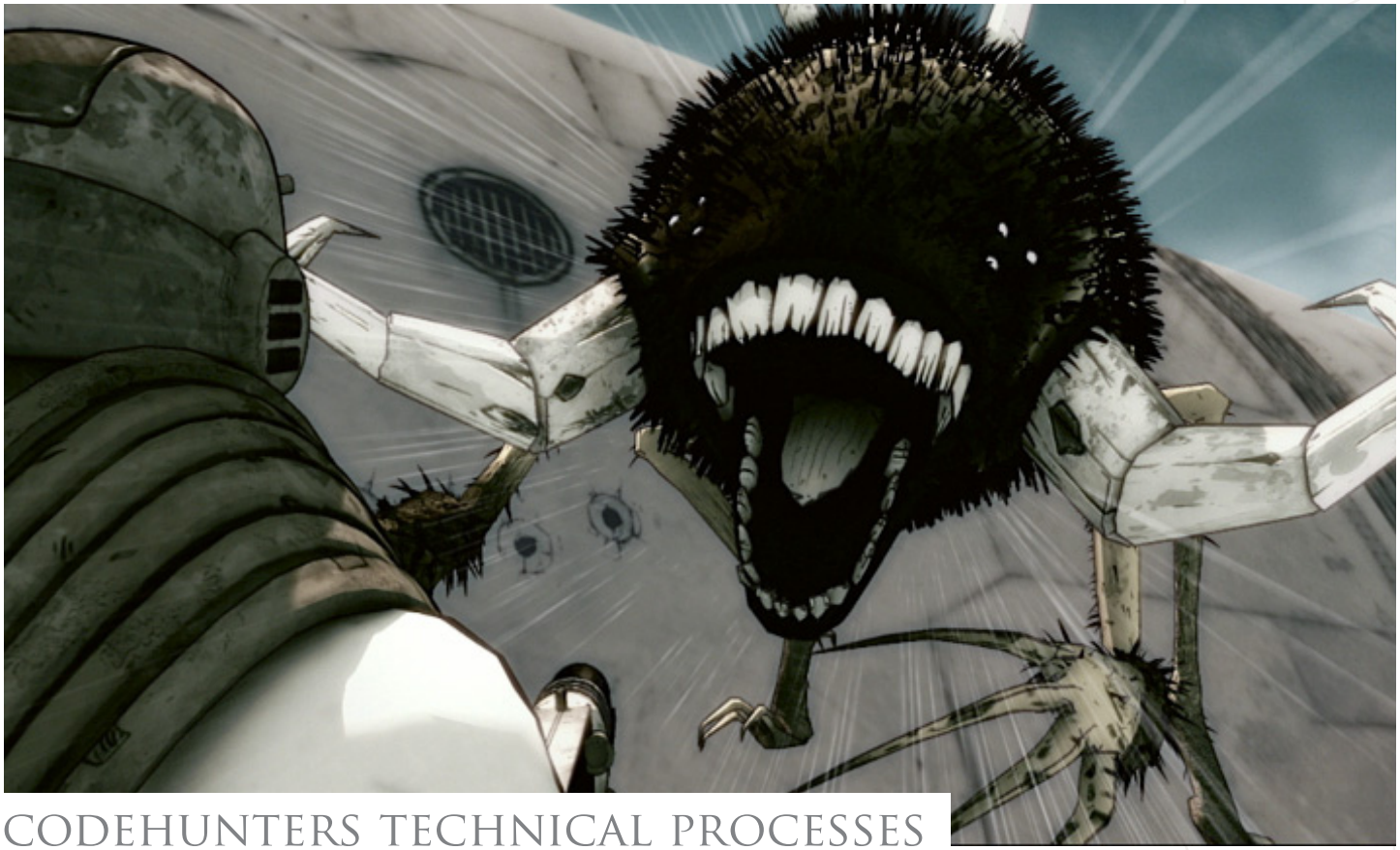
Working alongside production company Blinkink, whose lauded director Ben Hibon wrote, designed, storyboarded, edited and directed Codehunters; Axis' specialist team comprised of the finest modelers, compositors and animators, brought Hibon's character and concept designs to life with their dynamic 3D animation, creating one of the most exciting animated works of recent times.

The movie, shown as part of the MTV Asia Music Awards in Bangkok, was broadcast to a staggering 400 million homes throughout the whole of Asia which was broadcast on Saturday 6th May, with figures increasing by the minute thanks to it being shown online and available for download around the globe. Axis may have finally turned the spotlight onto the often-overlooked Scottish animation industry.

Oozing with attitude, the films four heroes; Shen, Lawan, Zom & Nhi, join forces to battle corrupt gangs, dirty paycops, rampaging monsters and the tyrannical Khann to overthrow all that is evil. Then of course, there is the mysterious Krai – but to say anything more would give the plot away. A showdown is definitely on the way. It is testament to the great work of Hibon & Axis that, not only does Codehunters succeed as a stunning piece of animation, but MTV Asia have also used it as an effective means of branding. Numerous people dressed up as characters, were seen mingling with musical royalty at Saturday's glittering ceremony, and stills, clips and designs from the film provided a fitting backdrop throughout the awards. In addition to this, the award itself was a bronze cast model of Krai.

Axis, who recently picked up a Welsh BAFTA along with a string of other awards for their TV series Colin & Cumberland, not to mention PROMAX Golds, New York Festival awards, Celtic Film Festival Awards & Roses Design Awards for other projects have, in six years, grown from four to forty and with 160 million people already blown away by their latest offering, who knows what's next for these Scottish ambassadors of the animation industry?





CODEHUNTERS TECHNICAL PROCESSES

By Stu Aitken – Technical Director

Codehunters used a combination of software: the two primary packages were Netwek's Lightwave v8.5, and Autodesk's (then Alias's) Maya v6.5. Z-brush and Modo were also used during the modelling, texturing and shading phases, especially on the characters. Layout and character animation was done in Maya, whereas FX animation, lighting and rendering were done in Lightwave. With additional texture work done using Photoshop.

Axis spend considerable time building up a pipeline, making it possible to transfer various assets between the packages used (relatively) easily - this includes various proprietary scripts written in-house but also relies heavily on Mark Wilson's Point Oven deformation translation package and Right Hemisphere's Deep Exploration for geometry and scene translation. With this 'mix and match' approach, Axis are able to maximise the strengths and minimise the weaknesses of the various software packages available. Lightwave is a strong modelling package and is a great environment to get nice lighting and FX done quickly and efficiently (which would be hugely important on Codehunters) whereas Maya's main strength from Axis' point of view is as an animation and rigging platform.

The primary obstacle Axis faced was just the sheer amount of shots we had to do on a very tight schedule - we had to repeatedly find fast solutions to things Ben would dream up and at



the same time deliver the visual quality that the project demanded.

This project pushed Axis much further than we had ever gone before, in terms of coming up with a unique non-photoreal look that had to sync perfectly with a previously established illustrative style. Ben's drawings have a very distinctive character to them and I definitely felt it was really important to get as close to that as possible. The transition from 2d to 3d is not always straightforward - they are very different mediums - but I really do think we excelled ourselves in that regard.

Initially most R&D efforts were on character deformation and shading. Lead Character Modeller, Serge Caires, devised the primary method of treating the character look which involved a mixture of custom line art added in Z-Brush and textured back onto the models, together with some textural elements supplied by Ben to give them a more solid, detailed feel. This was later fused with the main lighting approach, where Stu sat down with Ben to produce the initial Teaser spot, and where Axis came up with a predominantly rim lit look with some ambient occlusion thrown in to fill in the deep shadows. Stu then added a toon shader to crisp up the exterior lines on the characters at this stage.

Lead character, TD Jakub Krompic, created a solution to match the sinewy nature of the poses in Ben's concept artwork that allowed the animators to really get some curvature into the limbs, to accentuate and exaggerate the poses, - giving the character stances something extra, making them more pliable and less 'stiff' looking. This which is important because Axis were relying on having some quite still shots in many places where the characters essentially stood still and looked 'cool', but they still had to look dynamic even when they weren't moving. Custom deformation approaches to secondary animation, e.g. hair and cloth movement, really helped here too and we thankfully managed to get some really nice secondary movement without resorting to full blown dynamic simulations, which are notoriously difficult to control.

There is an interesting mix of influences evident in the movie from anime - especially the animation, but also a lot of a more European illustrative tradition. Some of the characters are reminiscent of the old 80s era 2000AD – appropriate for an Asian-aimed end product done in Europe. Final finessing to the special-effects, compositing and colour-grading were done at The Mill, London, with a blockbusting score and sound design by Dutch maestro Joris de Man, Axis' in-house composer.







Axis Animation

Axis is an award winning animation studio, based in Glasgow, Scotland, dedicated to creating the best in animation and visual effects for commercials, broadcast, film and interactive entertainment.

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Blinkink

Blinkink are a subdivision of Blink Productions led by producer Bart Yates and was set up to market the talent at Blink to agencies and clients. Their roster includes a strong animation contingent with directors such as Lynn Fox, Pleix, ARC & Ben Hibon.

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MTV Asia Awards

2006 marked the fifth annual MTV Asia Awards. Broadcast to 160 million homes throughout Asia, the event was held at Siam Paragon on 6 May, in Thailand's brand new, state of the art entertainment complex.
www.mtvasiaawards.com

Codehunters Credit List

Director - Ben Hibon

Exexcutive Producers - Imke Ferhmann & Richard Scott

Development Producer - Sam McCarthy

Line Producers - Laura Seymour & Tracey Paddison

Production Assistants - Andrew Miller & Tracey Fletcher

Technical Director - Stu Aitken

Modellers - Sergio Caires, Ray Slattery, Mark Brumby, Franco Bresciani, Ian Brown, Graham McKenna & Jan Almqvist

Junior Modeller - David Cleland

Rigger + TD - Jakub Krompolc & Franco Bresciani

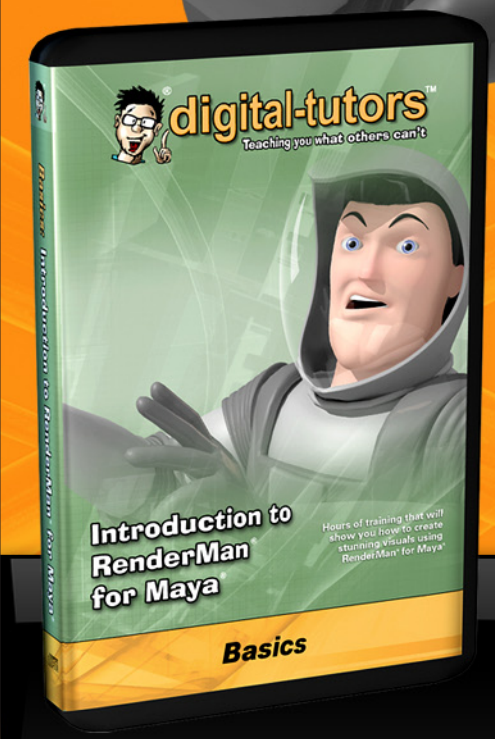
Animators - Cath Brooks, Joe Smith, Steve Townrow, Karin Mattsson & Jan Almqvist

Lighting & Compositing, Graham McKenna, John Barclay, Sergio Caires, Carlos Corriera & Nuno Conceicao

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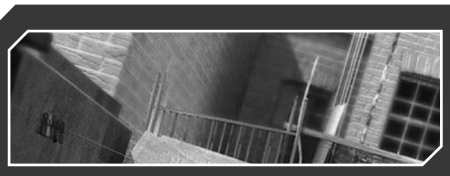
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COLOUR

part 1 THE SCIENCE OF COLOUR by Richard Minh Le

Welcome to the first part of a series of Colour articles written by Richard Minh Le. Each month Richard will be explaining to us all about the importance of colour, as well as the technical side of it as well. This month, Richard delves deeply into the science of colour...

Colour, in terms of both art and technology, is generally a broad and sophisticated subject to master. It influences the entire production process of displaying and printing images, and requires an understanding of the way in which human eyes perceive and read colour.

Nevertheless, experimenting with colour, can be quite enjoyable and can yield many interesting results. A good understanding of the basic principles in working with colour and how to apply them to your work, will help you tremendously – regardless of whether you are studying to be a traditional or a digital artist. And that is what we aim for in this series – helping you to get started on the basics and then eventually master colour as a means of expressing your art. The main focus is on colour, but due to the nature of it, I will have to go into a few other issues which I think will be very important in shaping your understanding about colour and engaging your artistic faculty on it in the future.

What is colour?

To answer this question, we need to look at the three factors that make up colour in nature – light, object and observer. What we see can be changed when any of these three factors are altered. So, let's have a look at the science of them...

The physics of colour – light

Light is the source of colour. When and where there is no light, there is no colour; therefore things can be seen as only black. So how does light provide colour?

Light is made up of Photons. Photons are, to put it simply, "packets of pulsating energy emitted travelling through space". Photons travel at a uniform speed particular to the medium they travel through (about 300,000 km/s in vacuum) and a specific energy level in each. The energy of a photon describes how slow or fast it pulsates, therefore, higher energy photons have higher frequencies and travel shorter distances between pulses. In other words, they have shorter wavelengths (Figure 01).

From the image below we can see the range of energy levels (wavelengths) from low to high.

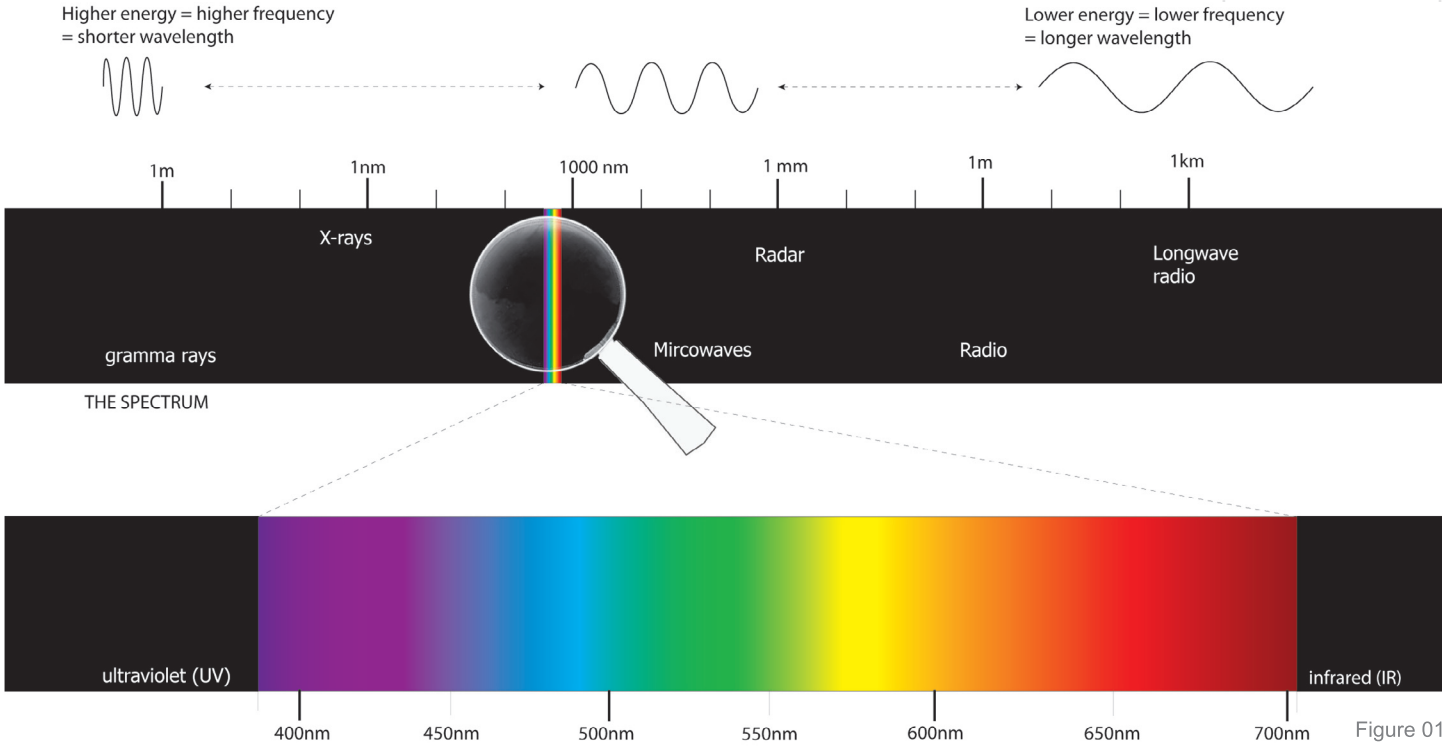
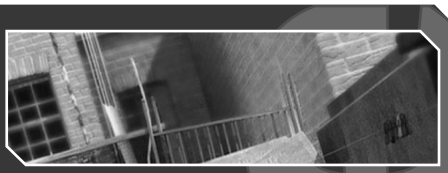


Figure 01



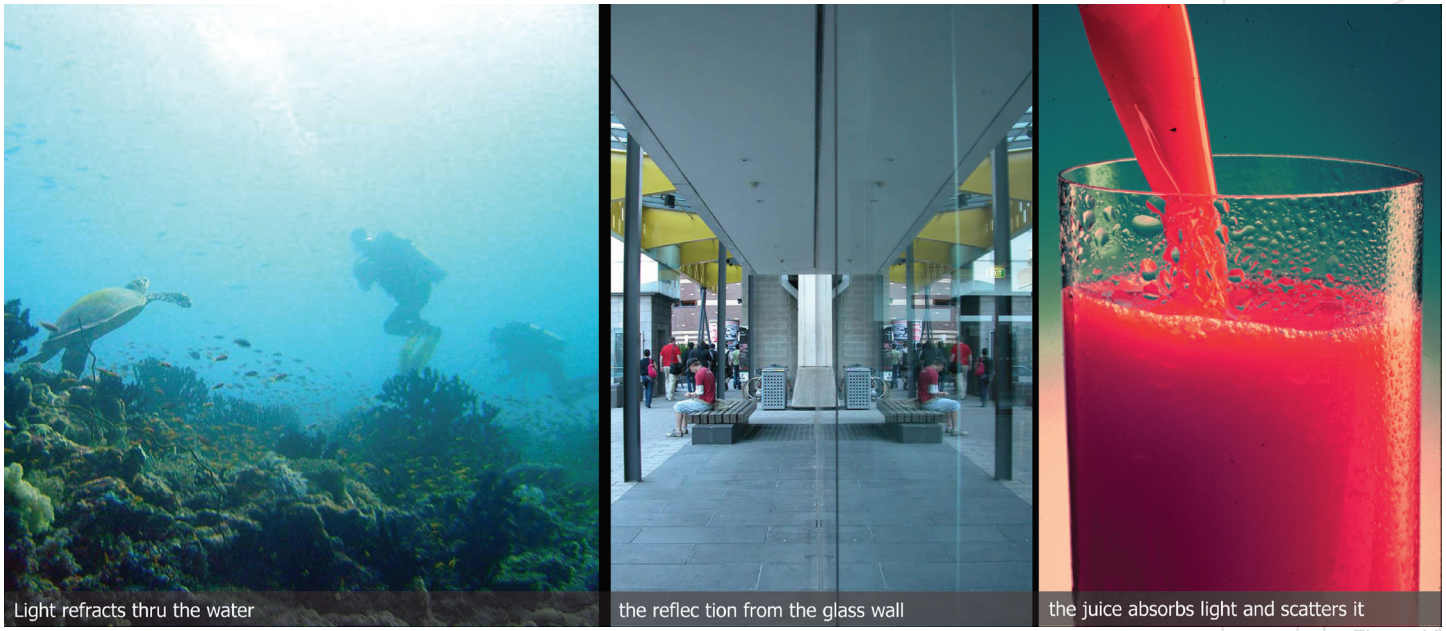


Figure 02

The full range is referred to as the Spectrum, and only a small part is visible to our eyes. This part ranges from about 370nm to 703nm and is referred to as the 'visible spectrum' – what we see as light. In this visible spectrum, there are 6 major colours known as; red, orange, yellow, green, blue and violet. Scientists have debated whether they should list these colours from short to long wavelengths or in reverse. However, what is important is that the order of them – which colour is next to which - doesn't change.

The chemistry of colour – object and its reaction to light

Colour is also an invariant property of objects. The way objects react to light affects the nature of colour and our perception and experience of colour.

Reflection and refraction are the two main phenomena of an object's reaction to light and the description of its colour to our eyes. Reflection refers to the "object's" ability to absorb and reflect/bounce incoming light. In other words, the object absorbs some wavelengths and reflects others. Different objects absorb and reflect different types of wavelengths; therefore their colours, and the colour of bounced light off them, are different.

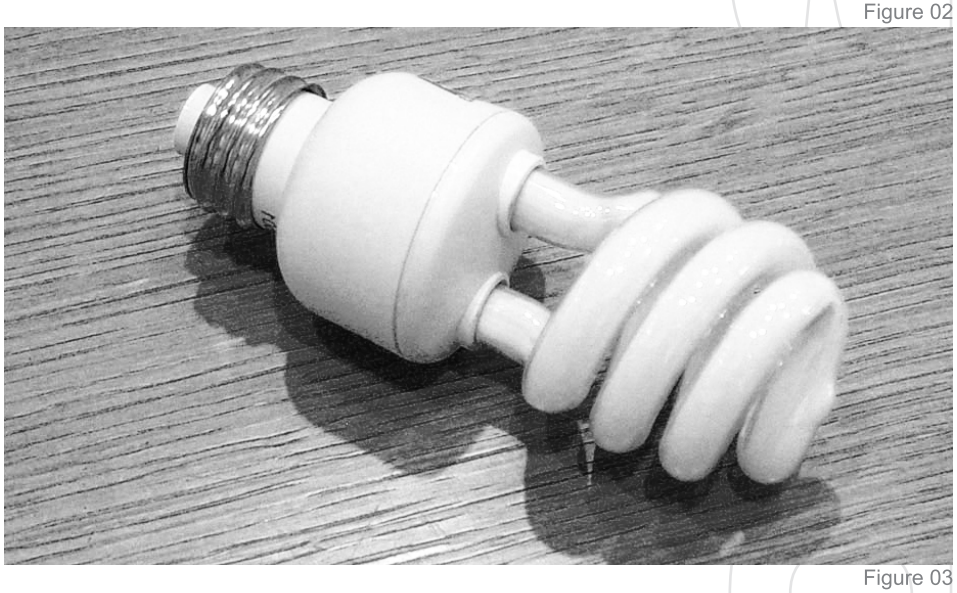


Figure 03

In contrast, refractive objects allow light to pass through and absorb some wavelengths. Another phenomenon, in-between the two mentioned above, is sub-surface scattering often known as '3S' or 'SSS' (Figure 02).

Another interesting phenomenon, called fluorescence, is the special ability of an object to absorb photons of certain wavelength and also emit photons of longer wavelength. Absorbed photons, generally, are in the ultraviolet range, and the emitted light is in the visible range. Its application is widely seen. The fluorescence lamp, for instance, has a coating of phosphor, which absorbs the ultraviolet light from the emitted light in the glass tube and re-emits visible, and more spectrally balanced, light (Figure 03).

The biology of colour – observer - The structure of the eyes

One thing to always keep in mind is that colour, or I should say the perception of colour, happens in the mind of the observer. That means the colour of light may vary across human eyes and those of an animal. Dogs and cats can differentiate red and blue much better than red and green; and they have to rely on

contrast and movement to identify objects. A Spanish fighting bull can see things only in black and white, thus using a red cape in the fight is merely a traditional choice!

Let us look at the structure of a human eye (Figure 4). From the outside in, we have the cornea handling the work of focusing light into an image at the back of the eye (at the retina and fovea). Minor focus adjustments and protection, from damaging high-energy ultraviolet rays, are made by the lens. The lens also affects the ability to identify changes in blue and green, and as we age the lens becomes more yellow.

At the back of the eye, there is a sophisticated layer of nerve cells called 'retina'. This is the most important part of the eye because these nerve cells are the receptors that respond to light. There are two different kinds of receptors; rods and cones (named because of their shape). Rods assist in seeing things in the dark, while cones function in bright light conditions. Generally, rods out-number cones; however, in the fovea, where the most receptors are found, and primary colour vision is located, cones are dominant. There are three types of cones – to respond to light of long-, middle- and short-wavelengths – the three regions of the spectrum of red, green and blue, respectively. This is why "red, green and blue (RGB)" is the standard for colour imaging etc.

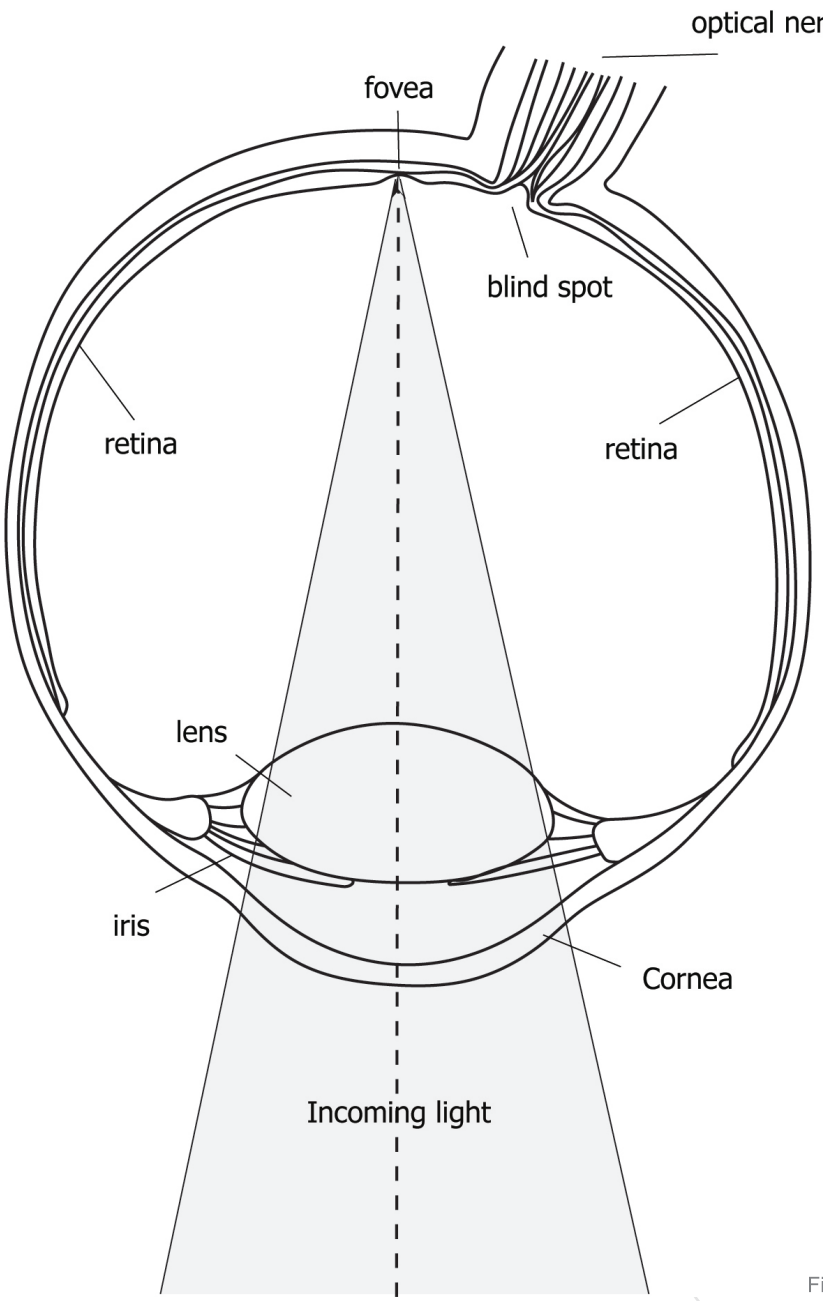


Figure 04

WORKING WITH COLOUR

Colour mixing

There are two types of colour mixing that use additive and subtractive primaries to manipulate wavelengths that travel in human eyes and stimulate the three cone receptors.

Additive primaries

Additive colours consist of red, green, blue (RGB) as the three primaries. Secondary colours are the result of the mixing. Red and green produce yellow; green and blue create cyan; magenta is the mixture of red and blue. This is the opposite of pigment mixing (Figure 05).

Additive colours are created by light and seen through the human eyes and recorded by the camera lens. Its name stands for the process of mixing. The more colours that are added to each other, the more they produce to the purity of light – close to white light. Equal intensities of

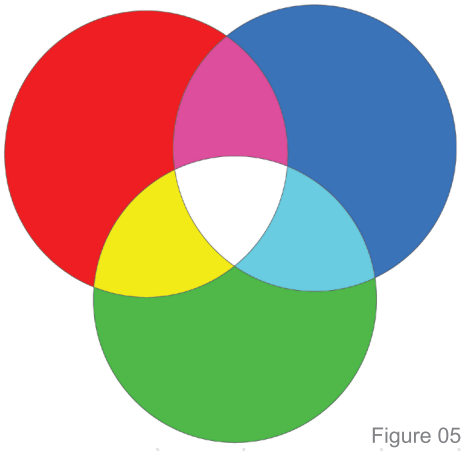
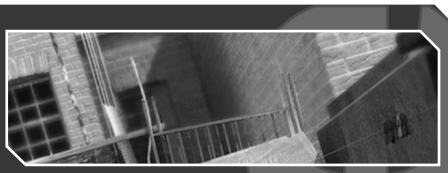


Figure 05



the primary colours (RGB) of light result in white light – all wavelengths in even proportions.
For your own experiment: Place three primary color slides covering 3 flashlights. Each is mounted and angled on a screen so that the overlap is obtained. The result might be not that close to pure white, but you will get the idea.

Subtractive colour mixing

Subtractive colour mixing, known as pigment mixing, is most familiar to us when starting painting as young children. This is also taught in every art class with the introduction of the colour wheel (Figure 06).

Subtractive primaries consist of three colours: blue, yellow and red. Black is the result of their combination and the mixing in pairs would produce green, violet and orange (as shown in Figure 06). The term “subtractive” comes from the mixing in which secondary colour is less vivid than the pair of colours that created it. This is because pigments, instead of adding wavelengths to black, absorb and subtract wavelengths from a white source of light and reflect the ‘in-between’ colour

Colour Quality - Hue, Saturation (Chromatic components)

Hue

Hue, in most of the graphic art industry, refers to pure colour, such as red or yellow, and not any de-saturated version of it. To be precise, scientifically, hue is the attribute of colour in which we see its dominant wavelength. Hue is defined by the wavelength that is seen in the most visible part of the spectrum (Figure 07).

Saturation

Saturation refers to the quality of light, its brilliance or purity of colour, or the relationship of colour to neutral grey. De-saturated colours are produced when they have a wide spread of wavelengths, and as a result, wavelengths being contaminated by other wavelengths. If you look into subtractive colour mixing, you will realise that the more you mix, the less pure/brilliant the resulting colour. Practically, colour desaturation appears when it is in shadow - the result of light insufficiency (Figure 08).

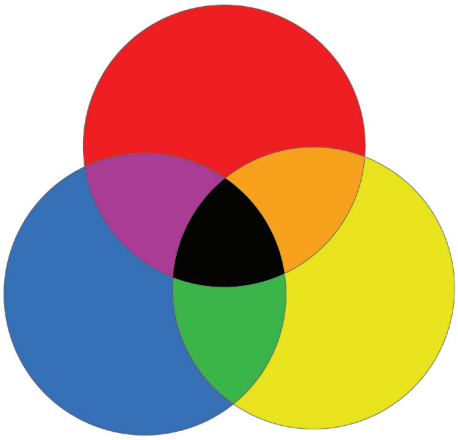


Figure 06

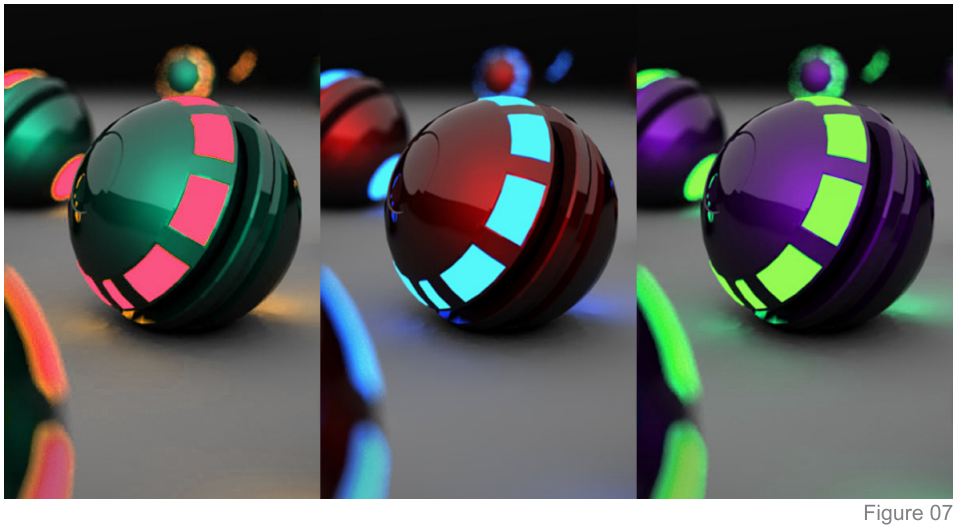


Figure 07









Figure 08



Figure 09

Value (Achromatic Component) and lightness

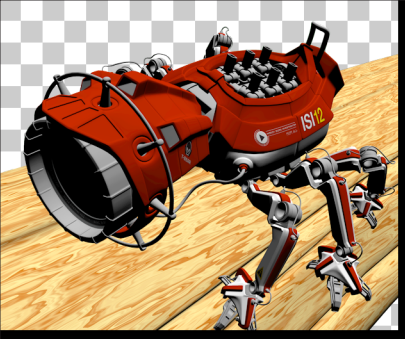
Value of colour refers to its dimness and brightness, while lightness does to its blackness and whiteness. Value is defined as high or low, based-on colour lightness and darkness. Adding white to a colour you create the tints, while adding black, you shade its hue and create a darker version of it. In practice, human eyes define spatial differentiation using value. Colours that have the same value and lightness are difficult to differentiate in space when used together (Figure 9).

Now you should have a basic understanding of the general principles that define how we see and use colour.

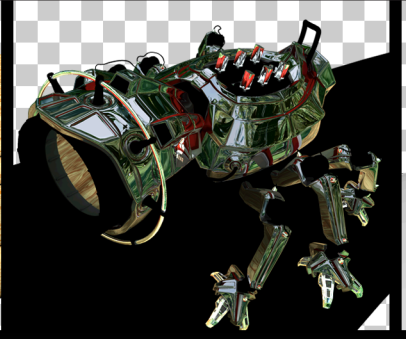
Stay tuned for part 2 of this colour article, in the next issue of 3DCreative

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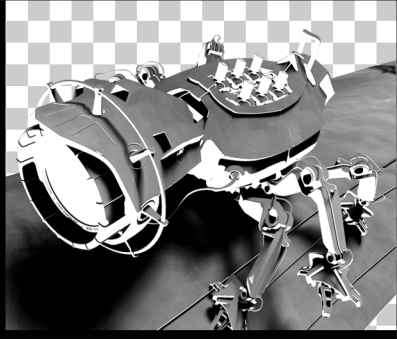
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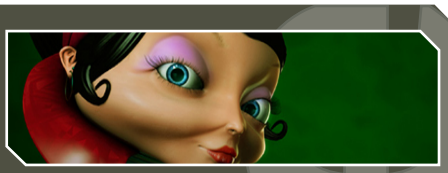
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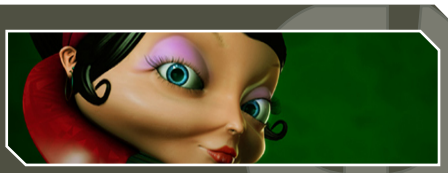
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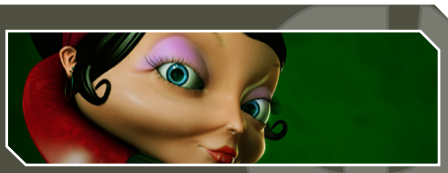
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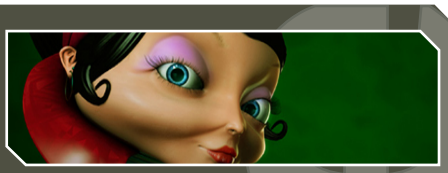
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LOW POLY CHARACTER TEXTURING PART 2

BY RICHARD TILBURY

In this tutorial we will tackle painting a texture for a low-poly character designed for use in a real time game environment. In this instance I have designed a character based upon a desert nomad who will be only partially clothed and wear some armour elements so we can cover painting both clothing and human skin as well as metal.

LOW POLY CHARACTER TEXTURING

Now that we have our base layer we can start to draw in guidelines which will help determine where we can begin to build up the detail as seen in image 1. Here I have drawn in a number of lines that will test the accuracy of our mapping as well as indicate where to begin painting details such as the muscle definition, accessories and creasing in the clothing. I often find that some of the guidelines may need to be tweaked a number of times before they appear in a satisfactory position on the mesh but when we get a result we are happy with we can proceed by building up the shading and highlights along with blocking in some detail such as the shoulder strap and armour. With the strap it is simply a case of selecting a suitable colour and filling in the relevant area. The armour is best done by finding an appropriate photo of metal which in this case I wanted to be a little worn and rusted. This can be pasted into a new layer and then by selecting a colour range that corresponds to the rust area we can hit delete to reveal the base colour underneath and then set the layer style to Difference with fifty percent opacity. (image 2) This provides a sufficient amount of detail to the base metal before we add any lighting effects. Having got to a stage that finally marks out the main areas of our texture we can start to add the shadows which will help create the illusion of form where there is none. When blocking in highlights and shadows I find a good rule of thumb is to assume there is a general ambient light above the model that casts soft shadows be it a character or building. With this in mind we can get an idea about which parts are to fall in shadow and which areas will appear illuminated. When it comes to clothing I've found that a technique that helps determine where to place creases is to consider which parts are more influenced by the body and where there would



image 1

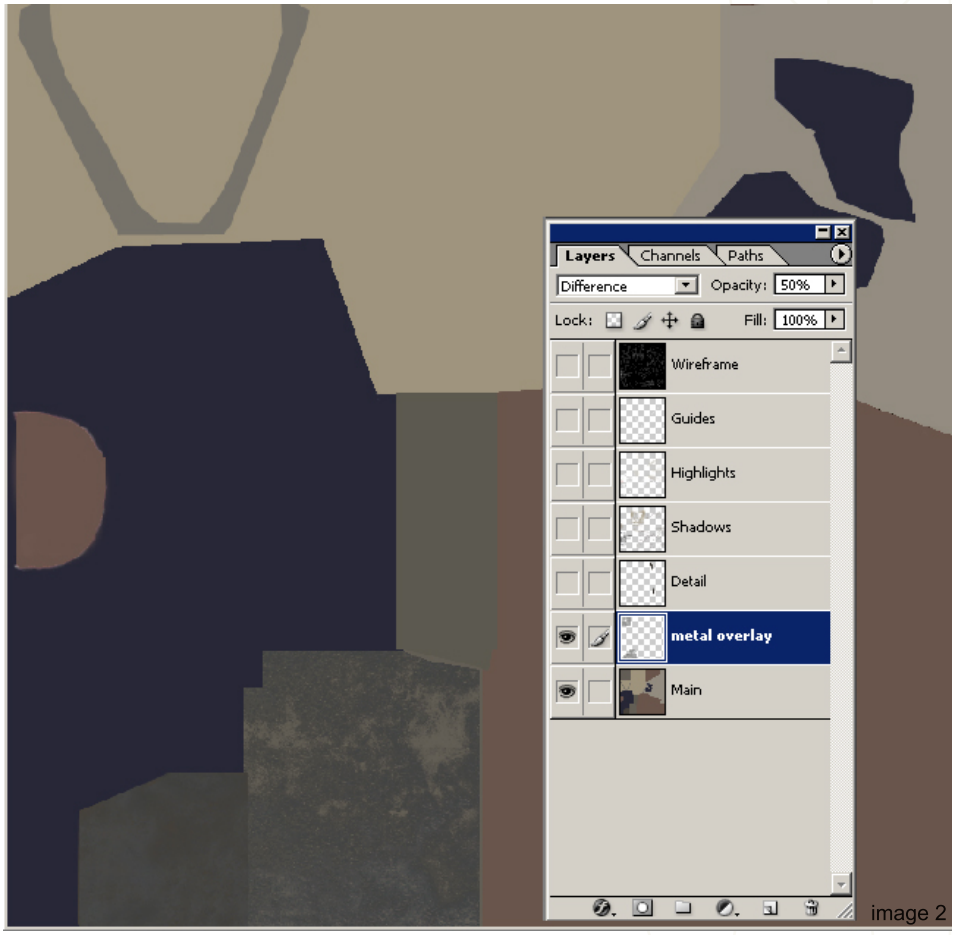


image 2

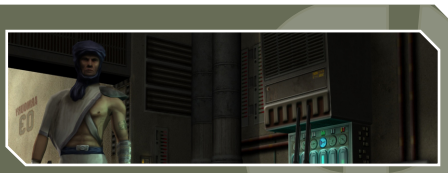




image 3

be more tension during movement and organise the folds around these parts and gradually fade them outwards to the looser areas. For example under the arm and around the shoulder as well as the elbow, groin and knee areas which are more susceptible to deforming under any motion as they hinge around the bodies joints. In the case of our Nomad we do not need to worry about the shoulders or elbows and instead have to consider the way in which the shawl hangs but with respect to his trousers I have marked in black lines the areas where the folds will roughly be placed. (image 3) Before painting in our shadows we need to set the layer mode to Multiply so they always appear darker. Then it is a simple case of painting in the direction of our guidelines and checking on our model. Because folds often vary with different fabrics and are never in the same place twice it is a case of trial and error when painting them in positions that look and feel correct but hopefully



image 4

when successful will help describe the anatomy underneath. (image 4) When painting in the creases I use a standard airbrush with a scale that suits the texture and rough in the direction of the folds as well as highlighting the main areas such as the top of the head and shoulders along with the cheeks and chin. By selecting white as a foreground colour and working in the Highlights layer which is set to an Overlay mode we can begin painting in the lighter areas which

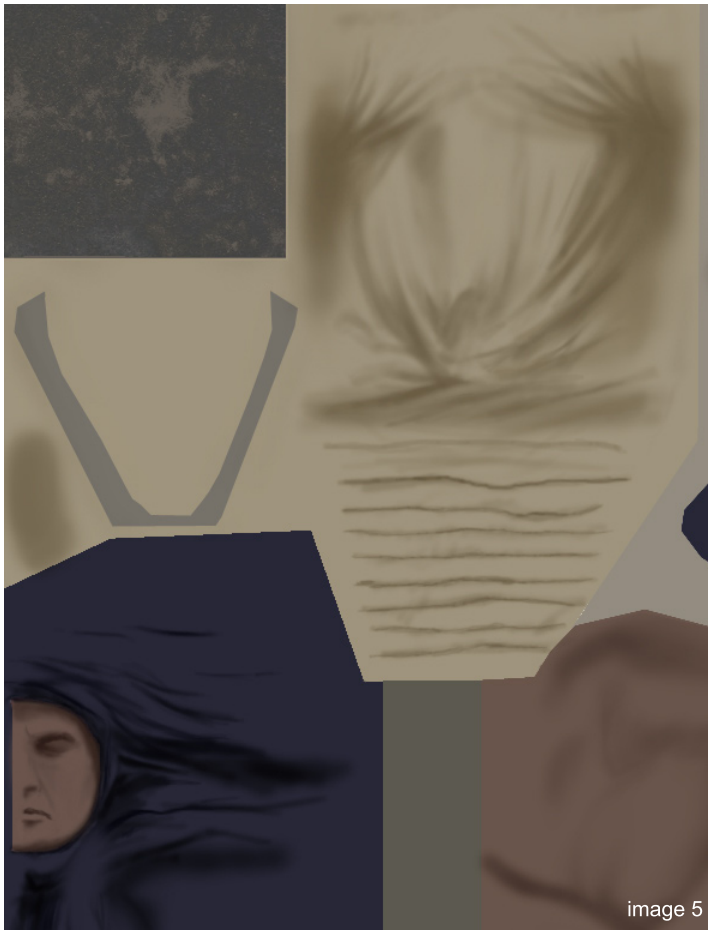
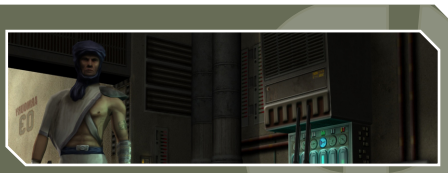

image 5


image 6

will then have an appropriate tone and colour. It is best to set the brush opacity to 100% on both layers so that we have a consistent tone throughout. Obviously it is an advantage to have a graphics tablet so that we can have pressure sensitive control and be able to vary the tonal values of the brushwork. When we are happy with the areas of shadow it generally follows that the highlights can trace a similar path by bordering them and therefore bringing forward the creases as seen in (image 5 and image 6). With the lighting added to the clothing all that remains to finish this aspect of the texture is to highlight the shoulder strap and put some shading around it to bring it forward from the chest area together with highlighting the edges of the armour which would have a tendency to catch the light. With this done we can compare our initial render which only comprised of our base colour layout (image 7) with the stage we are at now with our light and dark tones which


image 7



help give form to the geometry and add a lot more realism to our characters appearance. (image 8)



image 8

With the Shadows and Highlights layers now in place we can begin to see more clearly how the texture is affecting the geometry and begin to get a feel for how he may finally look. These two stages have helped carve out features and details not only across the anatomy but also across the clothing and show how a texture can help disguise a simple mesh and compensate for a lack of geometry. We are at a stage now where every aspect of our character has been worked on, whether to a greater or lesser degree and it seems like a good time to begin enhancing what is already in place and gradually refine the texture as a whole by building up the detail. First thing we shall do is add some extra highlights along the top of the armour elements to give the impression that they are reflecting the light and this we shall do by selecting the areas that make up the metal overlay and then inverting the selection go into the Highlights layer and paint over the top of the armour to give us something similar to Armour highlights. This will make the metal seem a lot more reflective but also convey a sense that it has seen some warfare and has rusted a little as it is not shiny across the whole of the surface. I've also added some extra straps to cater for the piece that goes over the shoulder as well as some over the boots and onto these I have painted in some highlights and shadows to help bring them forward a little. An extra touch of detail which will add bit of interest are some engravings across the wrist guard which are then enhanced using something called Layer Styles which can be found in the Layer drop down menu under Layer Style. This is a very useful component in Photoshop that we will regularly utilise to create the illusion of three dimensions. In the menu we find effects such as Bevel and Emboss and Drop Shadow which are perhaps the two most useful styles we will learn

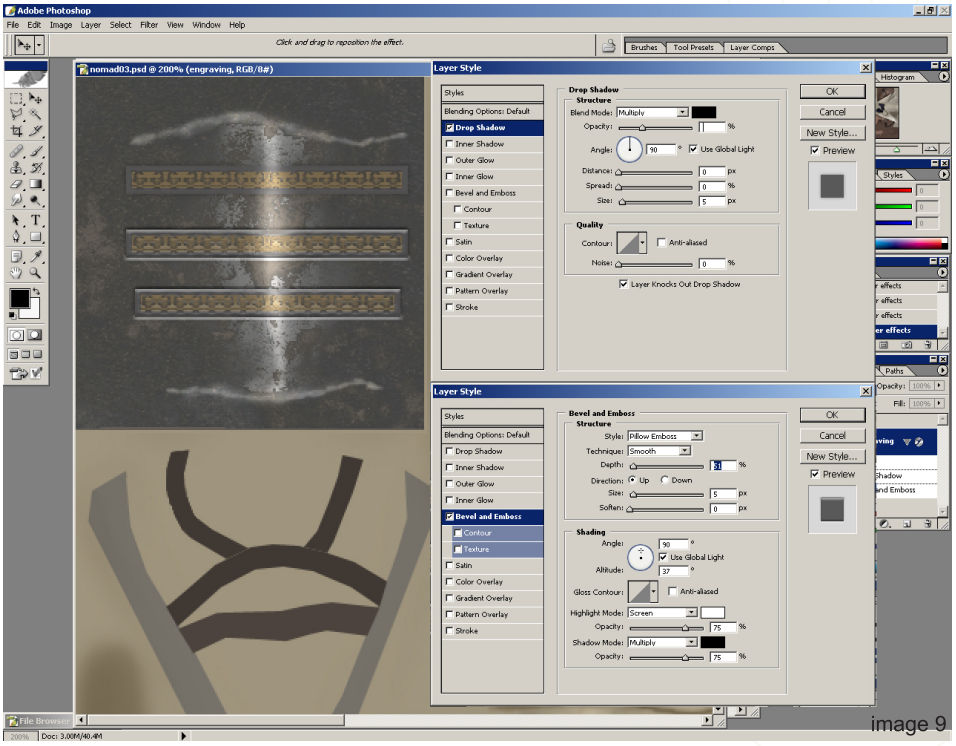


image 9

to exploit in this instance. In image 9 you can see the three new bands I've painted over the metal, the two lower ones have the layer styles applied using the settings on the right of the picture and the upper most one is the original as it appears without the Drop Shadow and Bevel and Emboss. I've done these on a separate layer so the layer effects are not applied to all other details which would cause problems. Two other areas of detail that I have also included

on different layers are some edging around the edge of the cloak and a tattoo across the arm. The reason for this is that they both do not use the default Normal Blending Mode as well as both requiring a different mode to work properly. The edging layer uses a pale violet with an RGB value of 140, 142, 171 and is set to Multiply whilst the tattoo utilises a dark green (R9, G58, B59) and uses Soft Light as its blending mode. These three extra layers can now easily be switched on or off if need be but have increased the interest on our Nomad texture which we can see in image 10. You will also notice that as well as lightening the trousers to separate them from the shins and footwear I've painted some shadow underneath the head scarf where it falls across the cloak to soften the contrast somewhat although what it really needs is a far less angular edge which we shall address later on.



image 10

We have now increased the complexity of our texture somewhat and most of the elements are in place but for a character that lives in a harsh desert environment he looks very clean and so what he really needs now is a bit of weathering and some dirt worked into his clothing to suggest his nomadic lifestyle. For this we shall use a Dirt map (image 11) which we shall overlay on top of the clothing and set to Soft Light. This is a black and white image that has been specifically made for this purpose in a manner covered earlier in the book. Once we have set it to Soft Light it is then a case of painting out areas that we do not want and trying to concentrate the dirt in places that look right such as in the creases for example and the bottom of the boots. When we apply our latest version our character will look similar to (image 12) which now gives us the impression that he has ventured into the desert environment.



image 11



image 12

With the dirt map done along with the extra details the character is looking more complete and now we arrive at the final phase of the

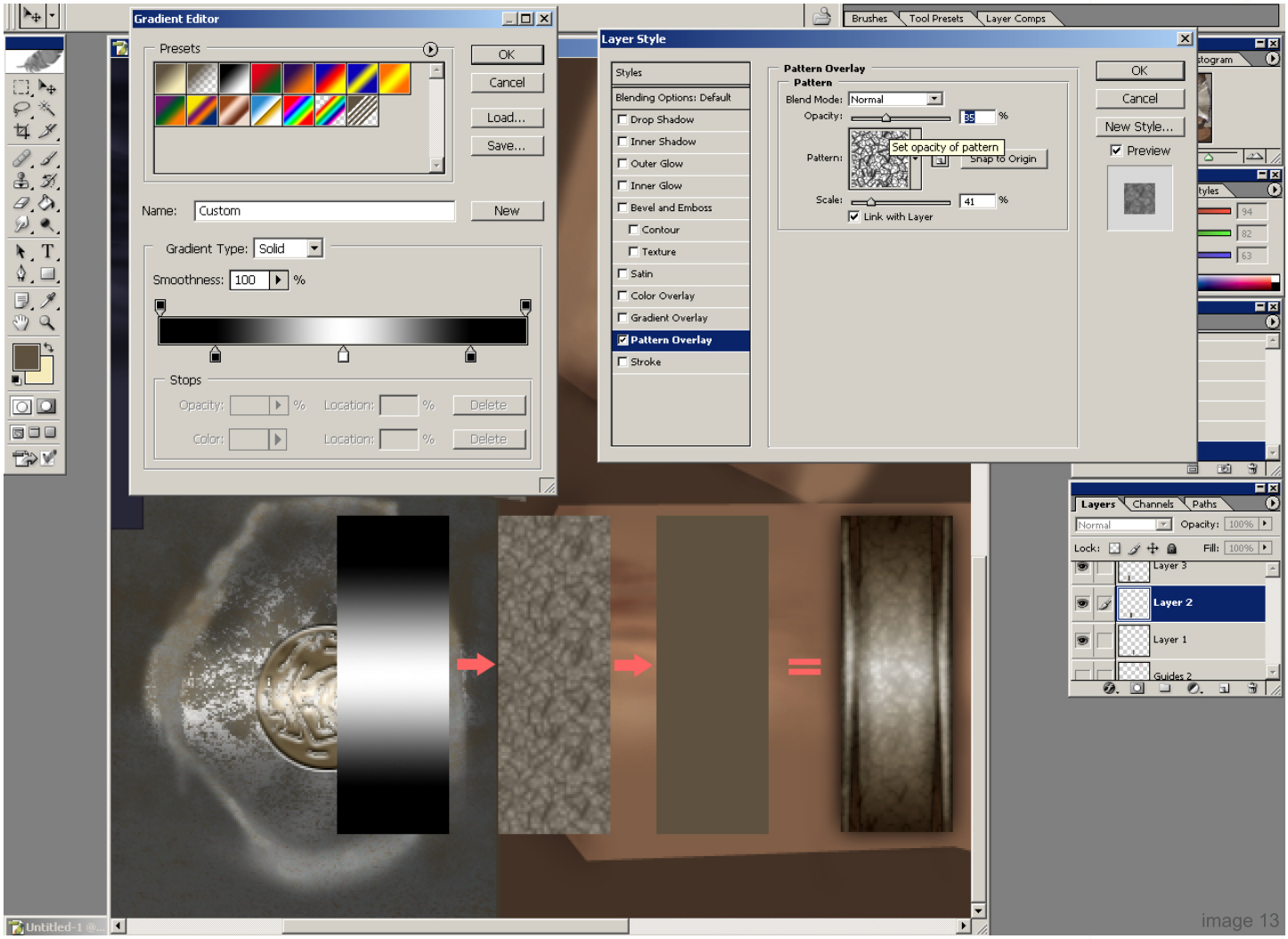


image 13

texturing process which is to improve on some of the aspects we have already painted in such as the shading across the body together with painting in some buckles on the straps and adding more interest to the boots and perhaps giving him a belt. I created a new layer I named Extra Detail which will comprise of straps and buckles, some decoration on the armour elements and a wrist band. In the case of the patterns on the armour these were done using the Bevel and Emboss layer effects. I painted in a shape such as the circle on the shoulder piece and after applying an initial effect proceeded to erase a pattern into it and then played around with the parameters a bit until it looked right. Often it is a case of painting a section of something much bigger and then trying out different settings such as outer bevel, inner bevel etc and altering the size and softness of the bevel and when it finally looks ok we can then continue on and finish the detail which will then maintain the designated effects on any of the consequent brushwork. This is the approach I took on the armour detail and also on the belt buckle which I duplicated and copied onto the wrist guard and the boots once it was finished. This again was made in a similar manner and what I suggest is that you apply a few layer styles and then have a play with the settings. It is always worth bearing in mind where the general light source is likely to come from when using this technique and in the case of characters I tend to imagine an overall ambient light source coming from above as if they are outside on a dull day, in that way shadows around the eyes and under the nose and chin seem to help make the face appear more convincing. Before copying the large buckle I added a little discolouring and some highlights to give it a less plastic look which were done on the same layer as they are relatively simple details. You could also use the Dodge and Burn tools found on the tool bar which could prove equally useful for adding shadows and highlights but be careful as these are easy to exaggerate! In the case of the wrist band I made a grey brown rectangle and then used a Pattern Overlay which is also found under the Layer Styles and selected one of the default patterns called Metal Landscape and set the opacity and scale to the settings seen in (image 13) up in the top left. Once this was done I opened the Gradient Editor by clicking on the Gradient Tool and set it up to a

black - white - black after first selecting a three colour default such as the blue - red - yellow. By clicking on the small Colour Stoppers under the bar we will have access to the colour table where we can change each of the colours on our Gradient as well as the location at which they begin to change on the bar. Follow the example settings as seen in the top left of the illustration and then drag a line along the height of the rectangle but on a separate layer so we can alter the Blending Mode to perhaps Multiply or Overlay and see some of the pattern and base colour underneath. When the three stages are combined we end up with a look similar to the band on the extreme right. All that remains to do then is add some edging and perhaps a little more reflectivity across the center of the metal. With this stage out the way we can paint in some straps and buckles on the boots and add a belt. This concludes the extra details that we will use to embellish our nomad texture and now we can get on and finish the skin by putting in some more realistic muscle definition by way of some additional shadow and highlight layers. The best thing to do here is use the Guideline layer and draw in some shapes that correspond to the muscle groups and make sure these appear in the right place before painting in any highlights. As you will notice from an earlier example there were some provisional lines painted in so we could get a reasonable idea of how the skin may eventually look but as all else is practically finished it is time to revise this area and adjust the shading with some refinements. You can see in (image 14) how the updated lines shown in black compare with the original white ones along the upper arm. These shall be our new guides but the thing to be careful of here are the seamlines which can prove to be quite tricky especially when painting skin which can comprise of many subtle tones. These can be seen highlighted in red in (image 15) and are the edges where we are likely to have problems but as these are in potentially shaded areas, ie. under the arm and along the side of

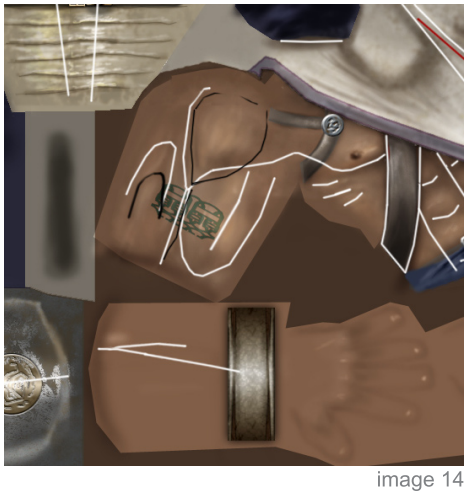


image 14

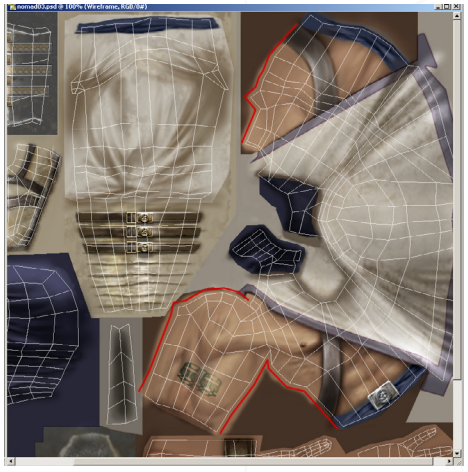


image 15

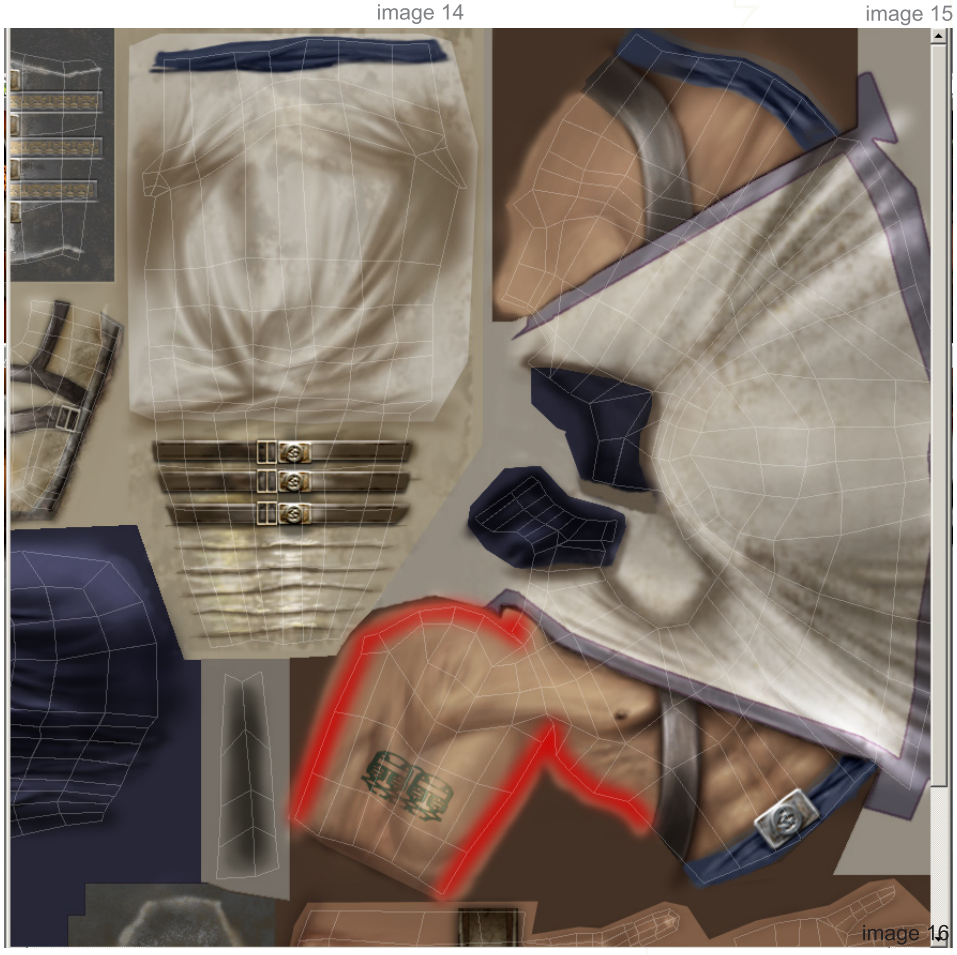
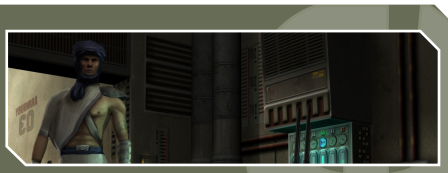


image 16

the torso we can use a flat colour that not only conveys this but also masks the seams. This is where it becomes important to consider where seams will lie and as you can imagine if the arm were divided down the outside drawing in the subtle muscle tones would be a challenge. A helpful way to begin is to select an area all around the edge that slightly overlaps the template, feather it by about 6 or so pixels and then by selecting a suitable tone use the Paint Bucket Tool to fill in. If we look at (image 16) you will notice how I have used a red colour to demonstrate how this principal works and guarantees a seamless edge to begin with. It is then a case of carefully fading in shadows and highlights whilst maintaining this consistency and trying to add detail within this boundary. It may well be that we have to draw in detail that



intersects the seamline and if this is the case then some trial and error and repeated tests on the model will be required until it works. For this final phase of the texturing I created one more shadow and two more highlights layers which I used to gradually build up the detail using exactly the same techniques as before. The reason I created these three layers was so I could work on improving the existing detail with the confidence of being able to refer to earlier stages if I needed a comparison to gauge the progress made. You may find that if you spend enough time on something you realise in retrospect that some of the initial stages were more accomplished and so having a history of the process helps chart this possibility and ultimately give you more of an insight into when the texture is finished. Once I was happy with the position of these extra highlights and shadows I made one final layer which I left on the default Normal Blending Mode and then using the Eyedropper selected the various tones from the other skin layers and painted in sections of both shadow and highlights on this single layer to tidy up the body and complete the texture. This is the layer that predominantly makes up the skin areas and solves the seam issues but reveals some of the underlying ones that combine to create the finished look. If we look at (image 17) we can examine just how much of this layer is apparent and when we compare the earlier version with the recent one in (image 18) we can see how there is now more definition and detail across the skin and the tones and colours appear more convincing.

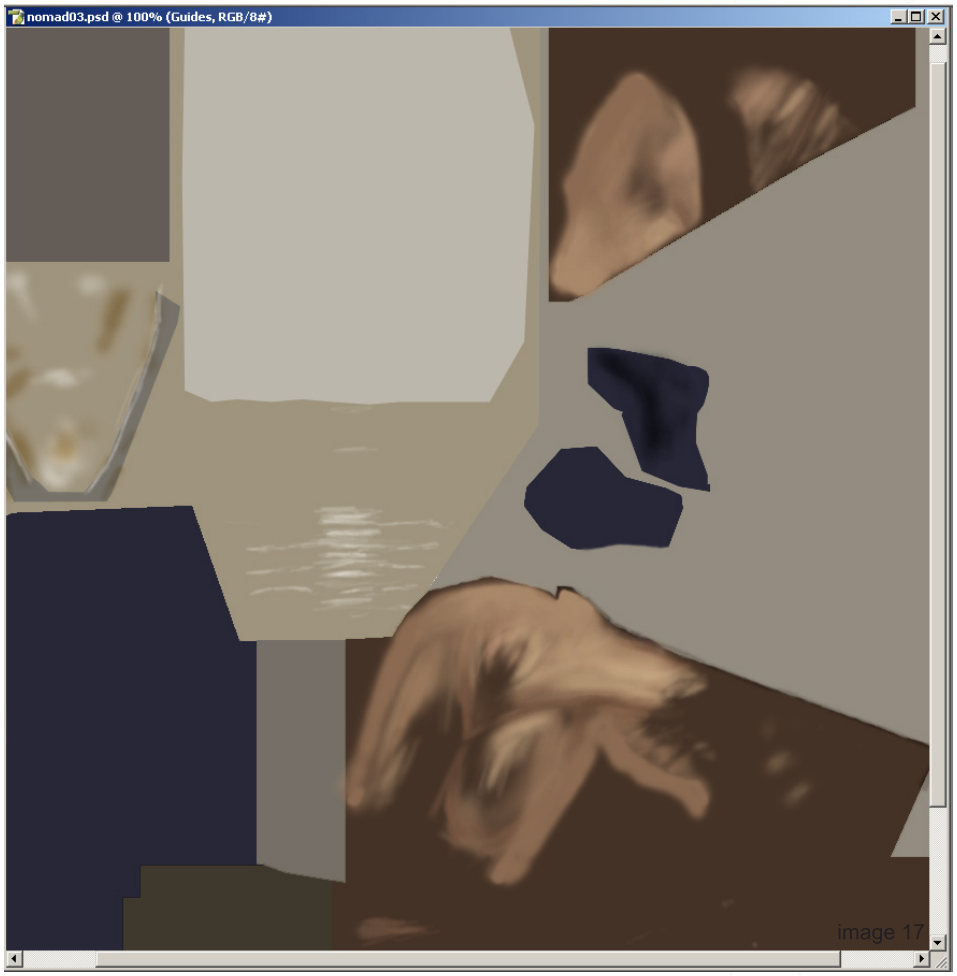


image 17


image 18

To summarise then, we have started with a reasonably low poly scene and character and used textures to describe the surface quality and detail of the geometry using techniques akin to games development. We have seen that by duplicating mapped geometry we can save on texture space and that with a minimal amount of modelling we can enrich a character and environment through textures. There are

a number of ways in which we could enhance our workflow which I have not touched upon including baking rendered lighting effects onto our textures as well as incorporating vertex lighting and normal maps which is becoming more and more common nowadays.
However I have tried to focus more on the general approach to texturing for real time and show how a few simple techniques in Photoshop can help breathe life and detail into basic models. I hope that you have enjoyed the tutorials over the past few months and have learnt a few valuable and useful tricks and maybe even been inspired to create your own scene and characters.

Tutorial by:
RICHARD TILBURY

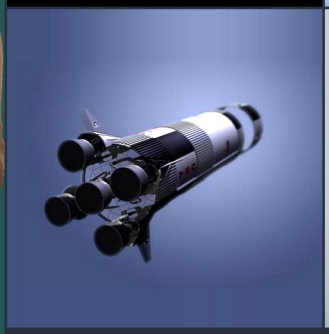












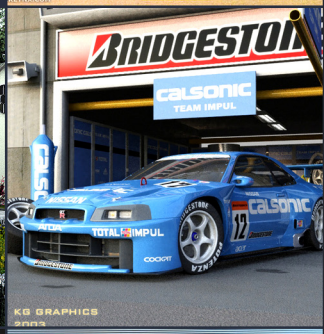



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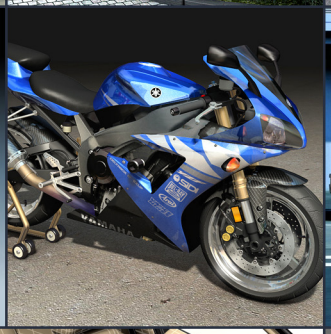
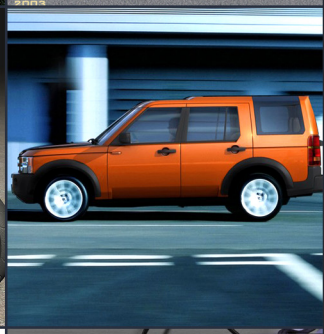
3d02.com. Commonly known as a high quality 3d model store, one of the premier stores of digital assets offering ready to use CG 3d models, and an open platform allowing artists to publish and sell their 3d models online

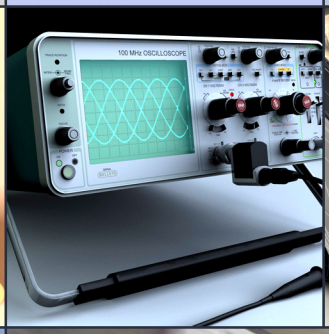




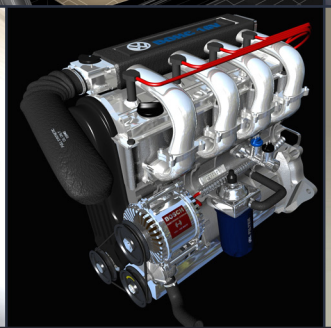



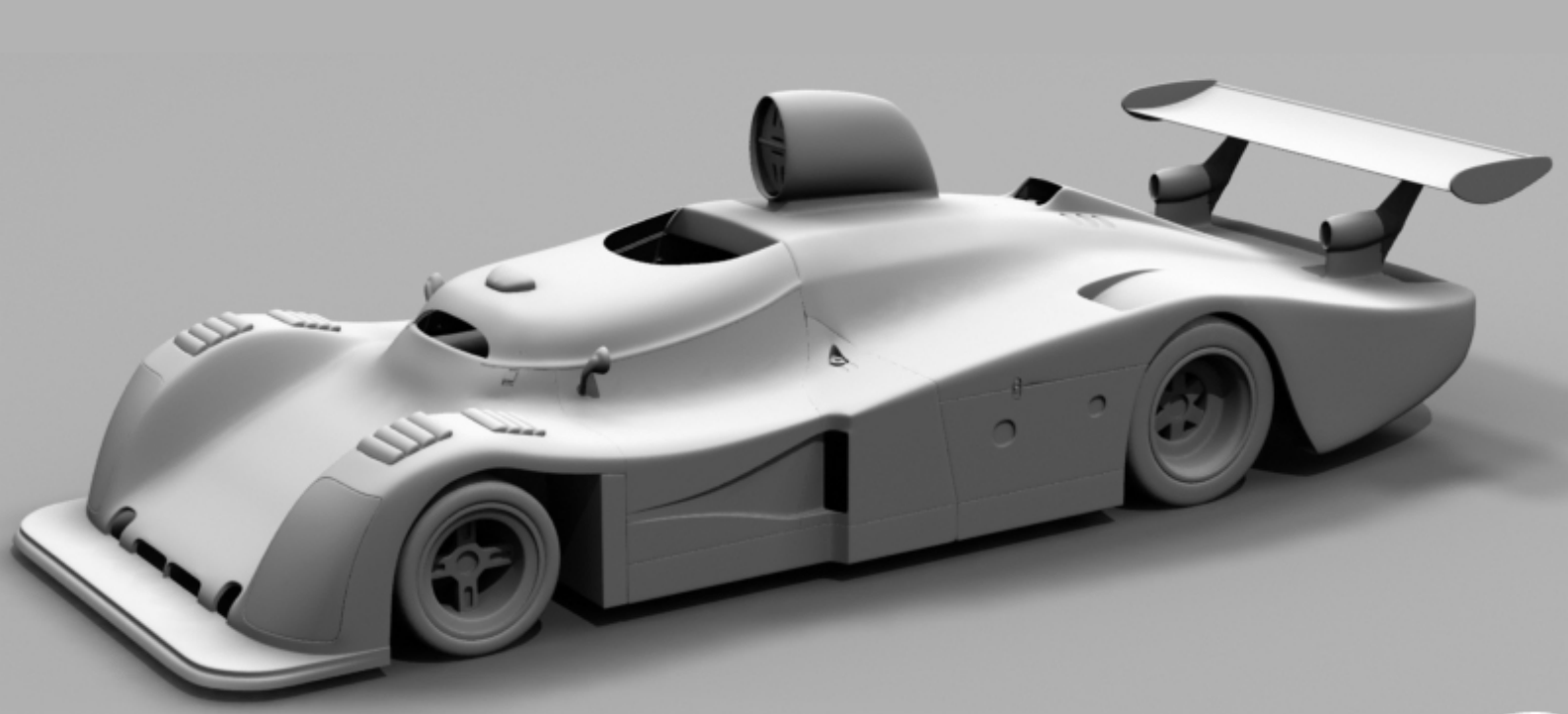






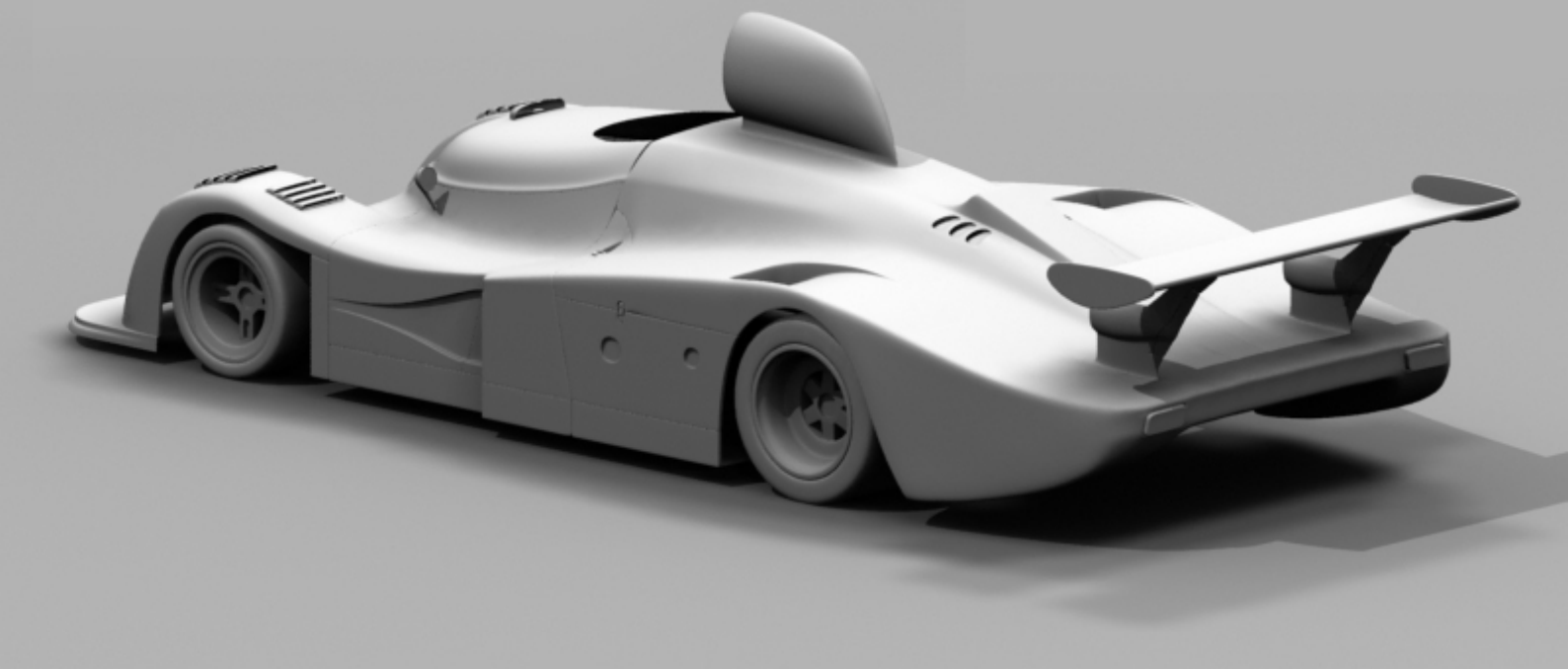



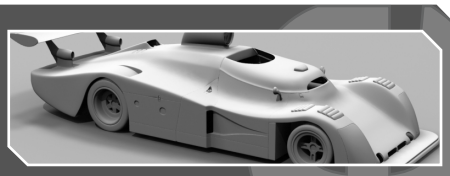



modelling an Alpine A443

by d'Ettorre Olivier-Thomas

part three





Part Three: Annexe:

Rims

Difficulty - 4

Importance - 4

Begin by making a cylinder; number of sides is X*N: - It depends on the number of branches on the rims (here, 4, so, X is a multiply of 4)

- It also depends too on the space between each branches (If N is big, the branches will be very small and the distance between two is large)

I made 12 (fig1) , 4 branches of 2 poly's separated by 1 (so 3 poly each). After this I duplicated this group of 3 poly's to make up the rest of the rim.

So from this cylinder, I delete the two caps, and extrude (fig 2).

I then make 2 more cylinders, using the same formula. Use the snaping 3D , pivot mode, to use the same center for the two cylinders (fig 3).

For the top air vent, I create an insert and double chamfer to sharpen the edge. (after joining the two cylinders) (fig 4). In fig 5 you can see a little edge added, to make the design of the rim.

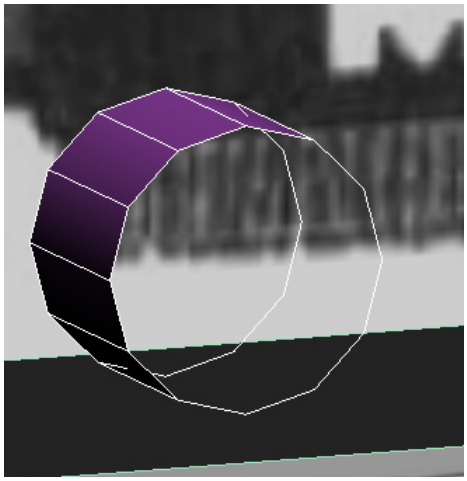


fig 1

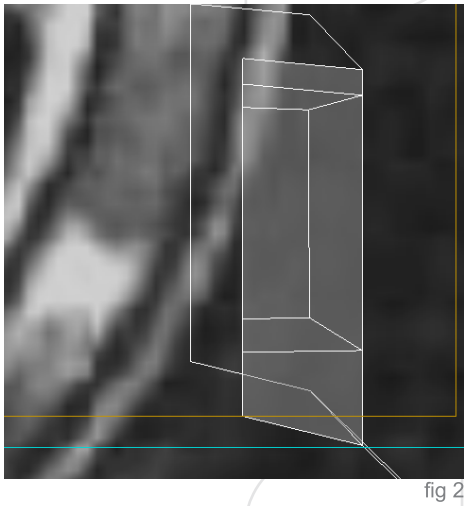


fig 2

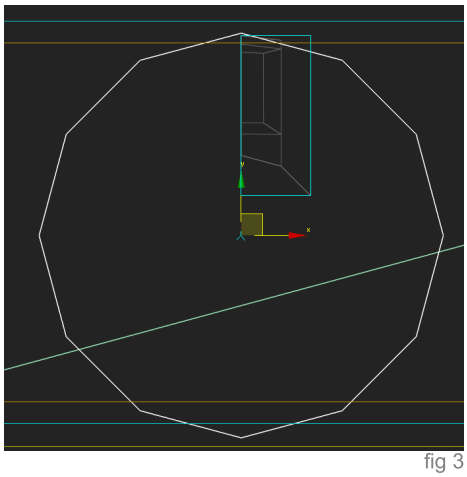


fig 3

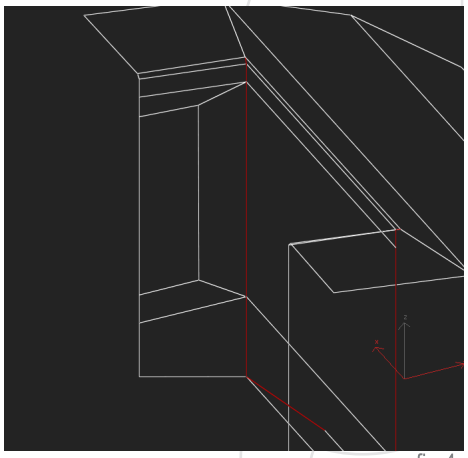


fig 4

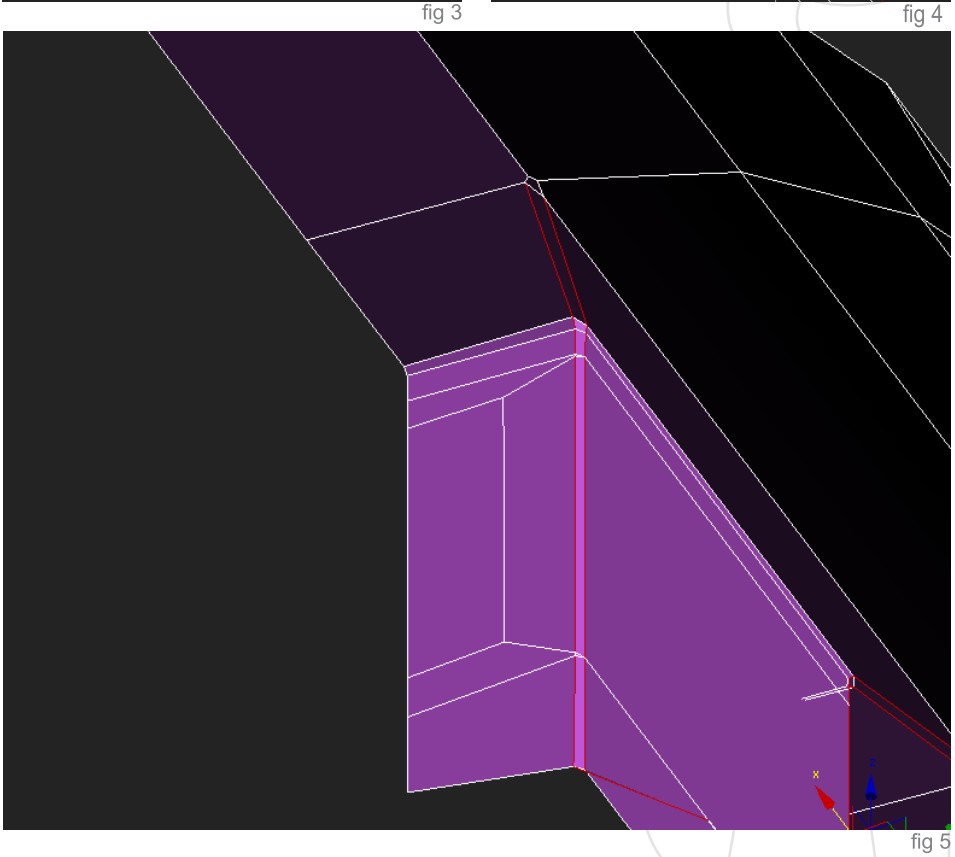


fig 5

You can now duplicate the piece 3 times (fig 6), and notice at the center (fig 7), there is a chamfer (fig 8). On fig 9, you can see it is now a single object; weld all vertices, and extrude, the edges from the center and for each branche (fig 10). Finish the rim, by extruding the external edges of the big cylinder (fig 11).

N.B: note that the rear rim isn't like the front one, so, don't copy/paste them.

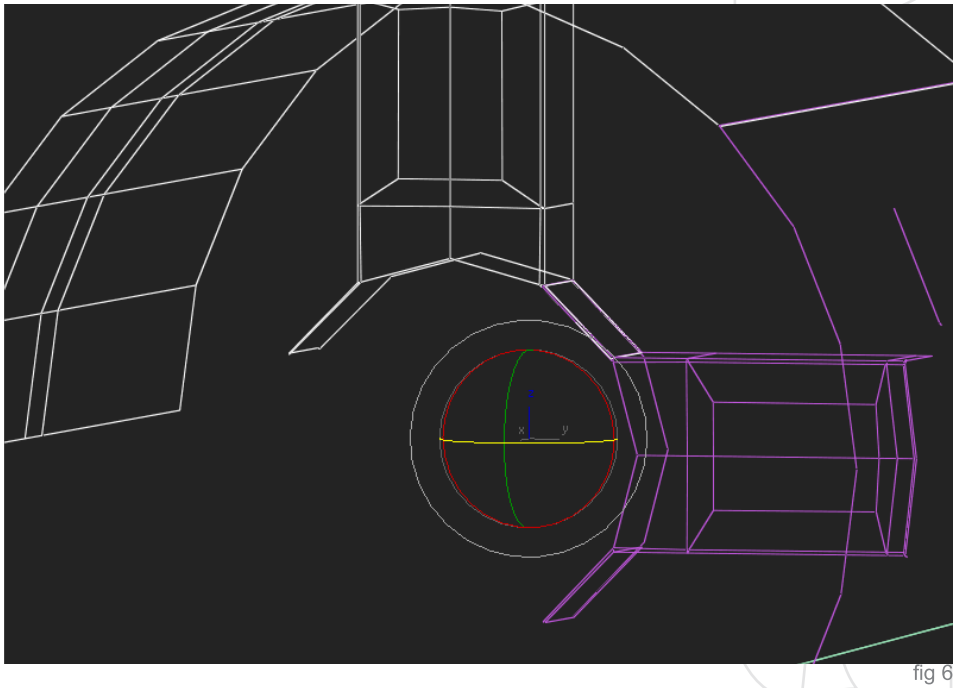


fig 6

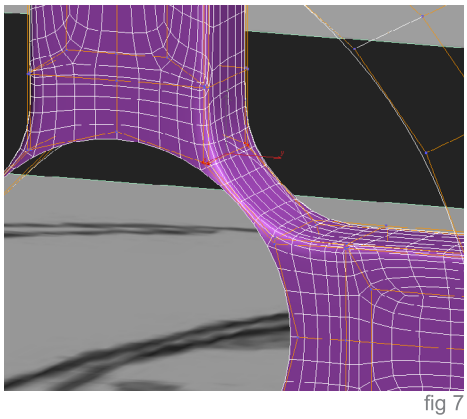


fig 7

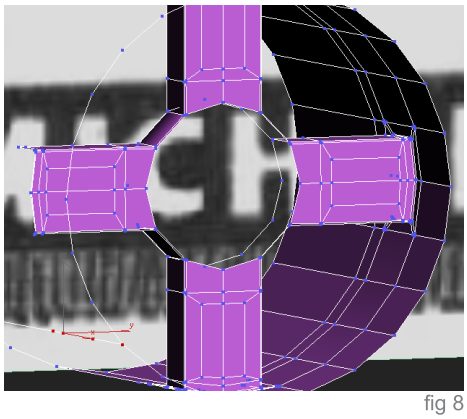


fig 8

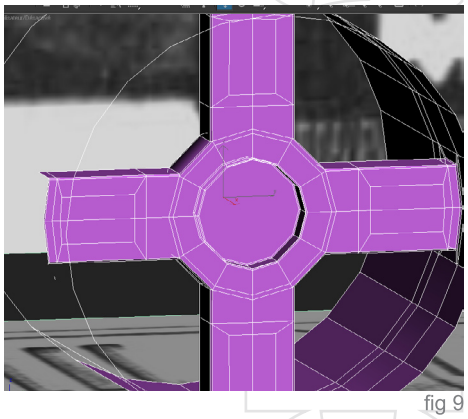


fig 9

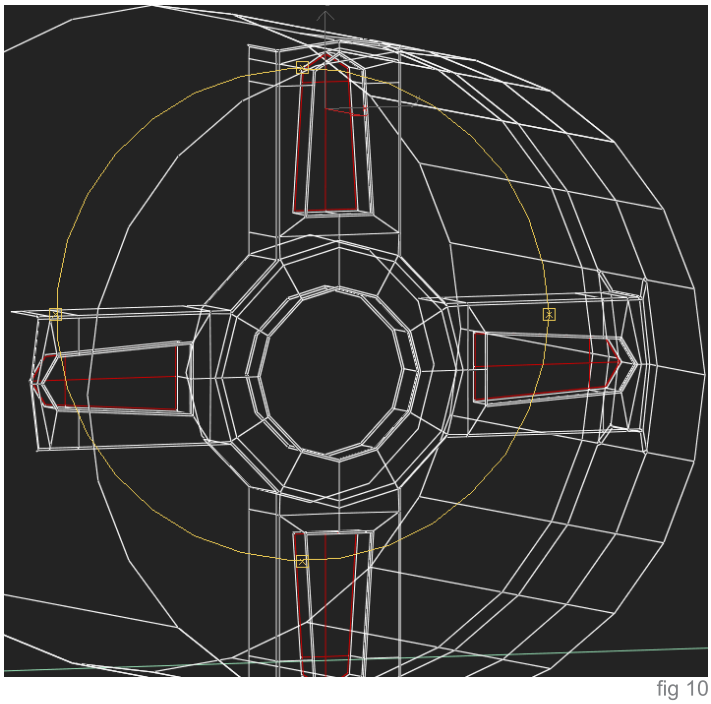


fig 10

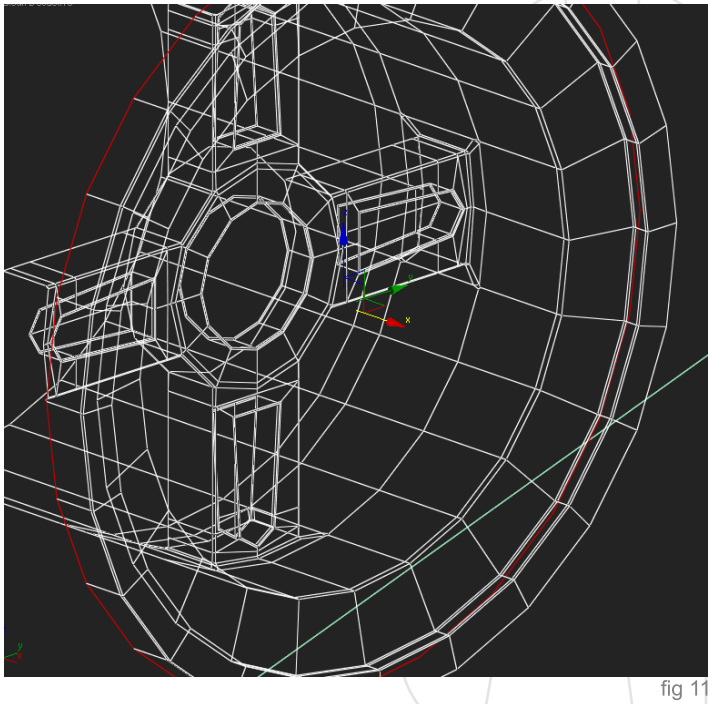
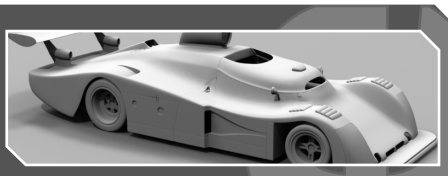


fig 11



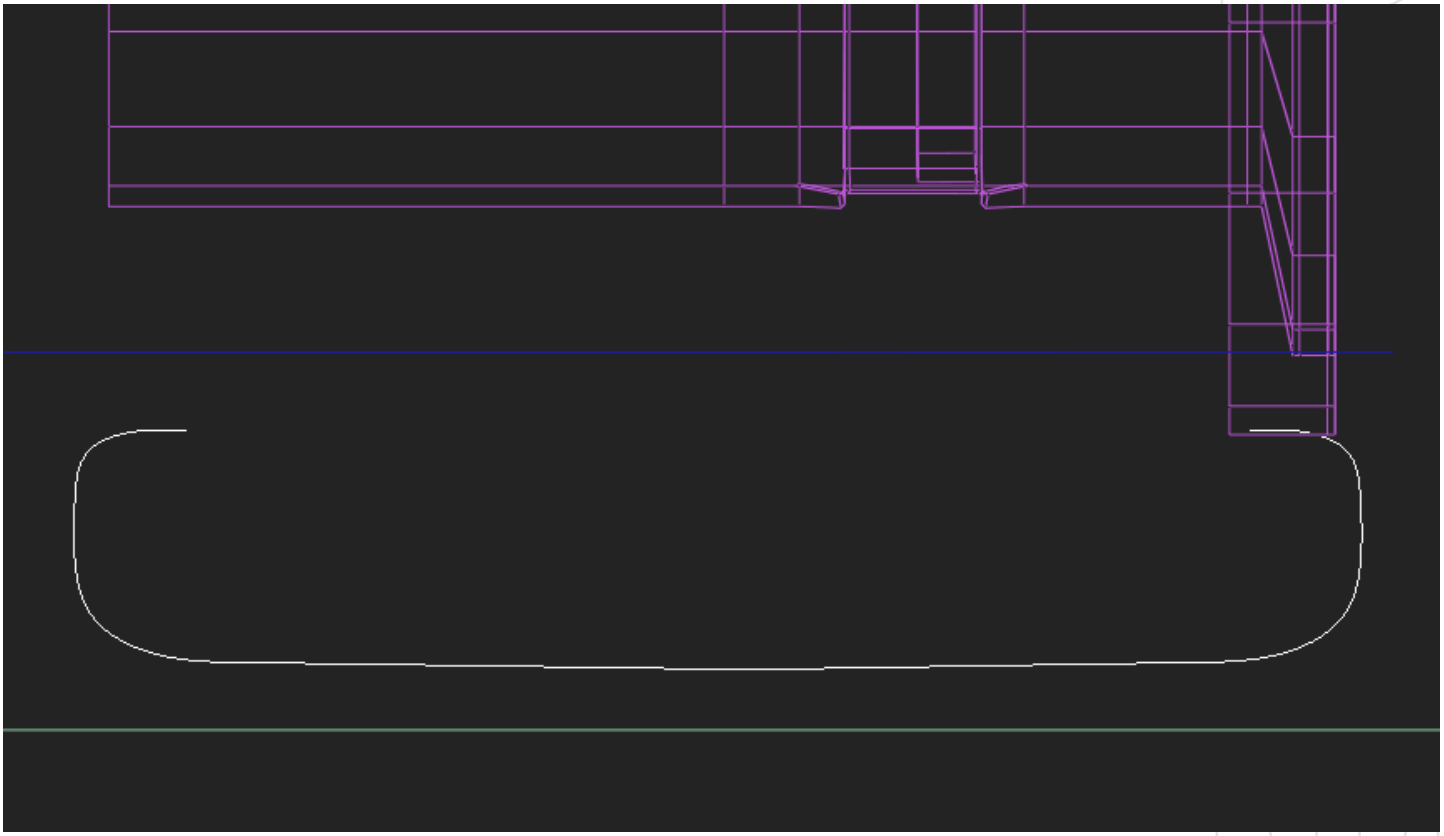


fig 12

Pneumatique

Difficulty -1

Importance - 4

or

Difficulty -3

Importance - 4

You can make the tyre now, using a spline and a lathe, but not optimized at all!!!, so:

Make the spline (top view), and position the pivot point with that of the rim. Apply a Lathe modifer to it, and keep this as a reference (fig 12). Now, make another cylinder, and make another rim as before (picture 6 above). On (fig 13), you can see the two tyres.

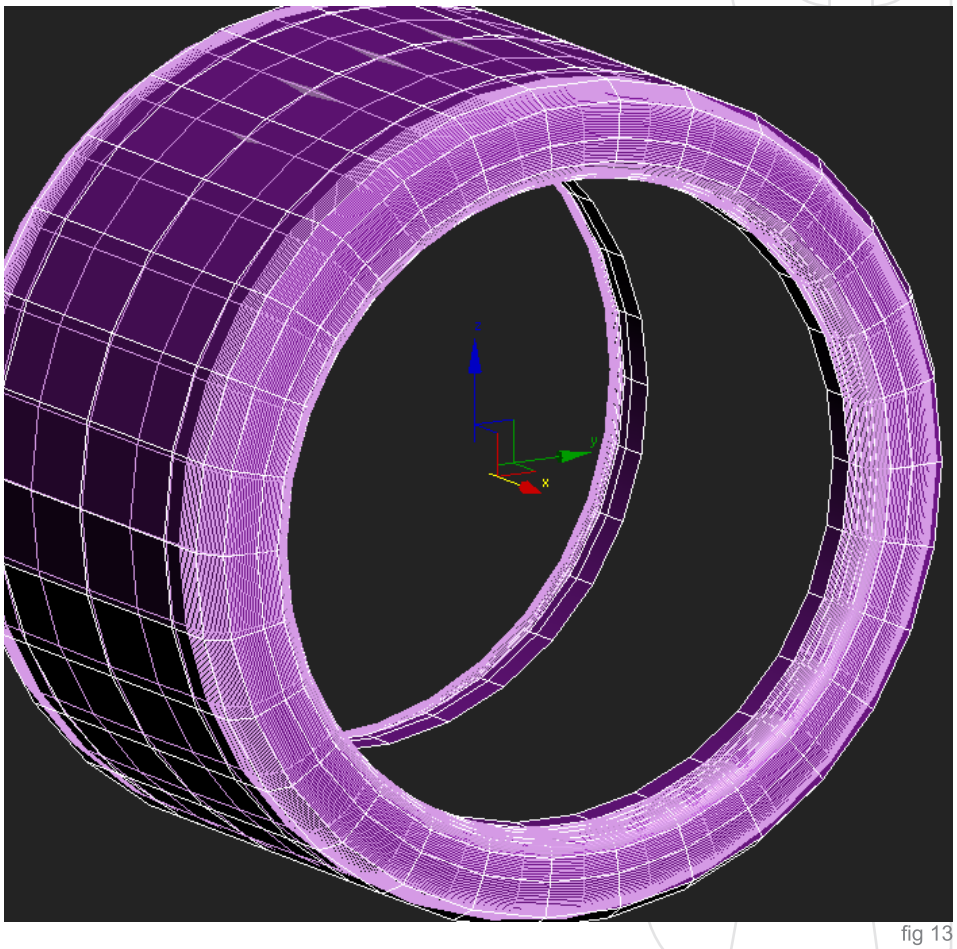


fig 13

Bubble

Difficulty -4

Importance - alternative

Now, let's add the bubble, This little piece was like an oven for the driver, so, not often on the car... (so, don't have any plan of it...)

To begin, I'll use the upper part of the cockpit, as a guide (fig 14). So, I have a good base after detaching the polys as a clone (fig 15), and I begin extrudeing from here upwards, following the part of the car, behind the driver. Don't forget to play around with vertices, and move polys, using all views to make it. (fig 16 - 18)! Continue until you get something like you see in fig 19.

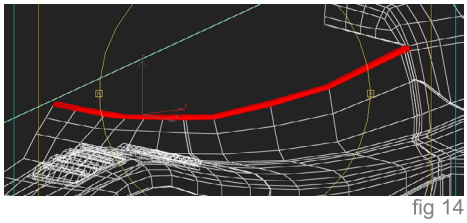


fig 14

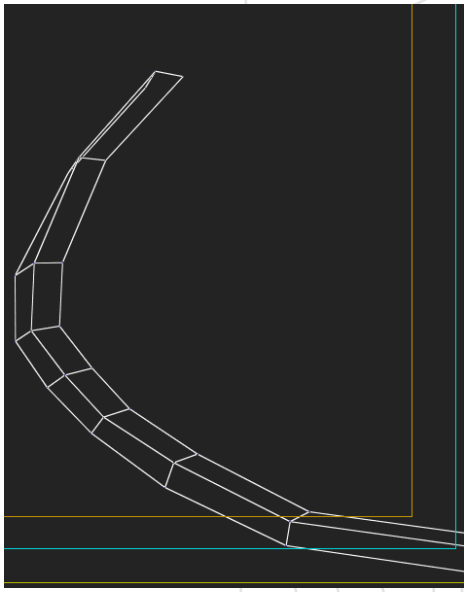


fig 15

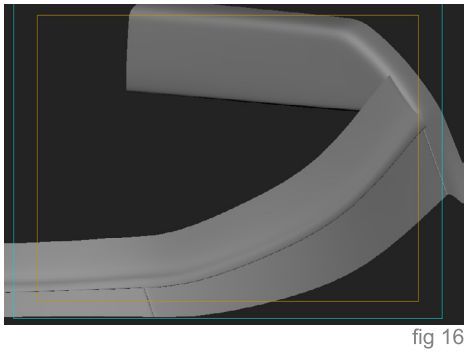


fig 16

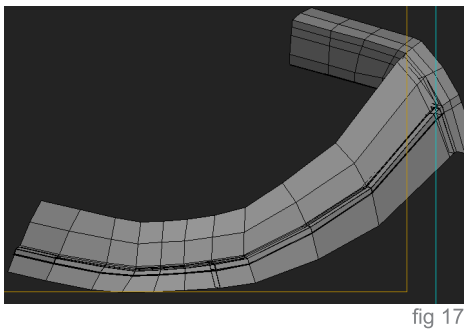


fig 17

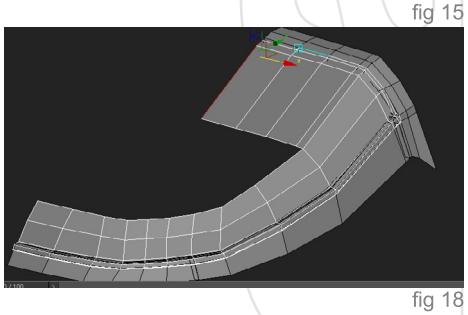


fig 18

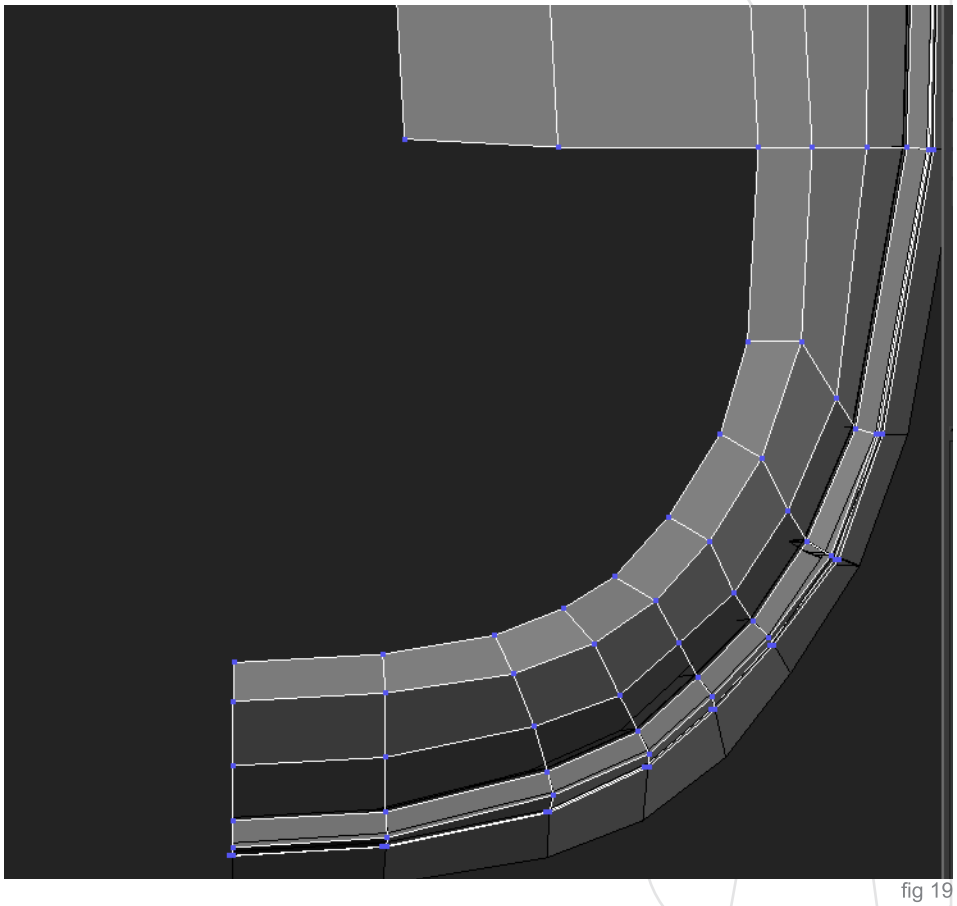
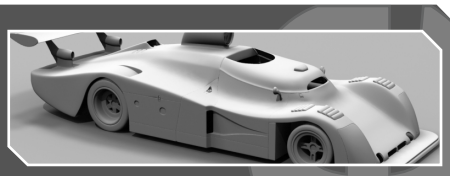


fig 19



When done, cap the box.

When finished, check using meshsmooth that the bubble and car, match up!. And don't hestitate to tweak vertices if things look wrong (fig 20 - 23).

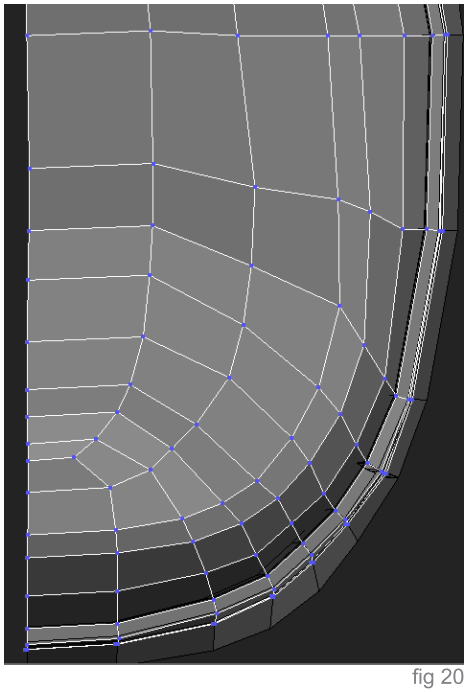


fig 20

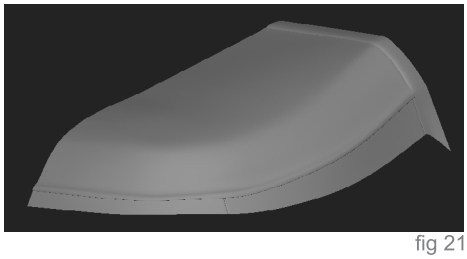


fig 21

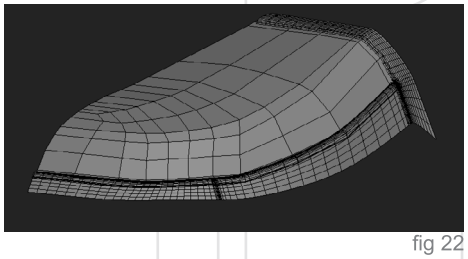


fig 22

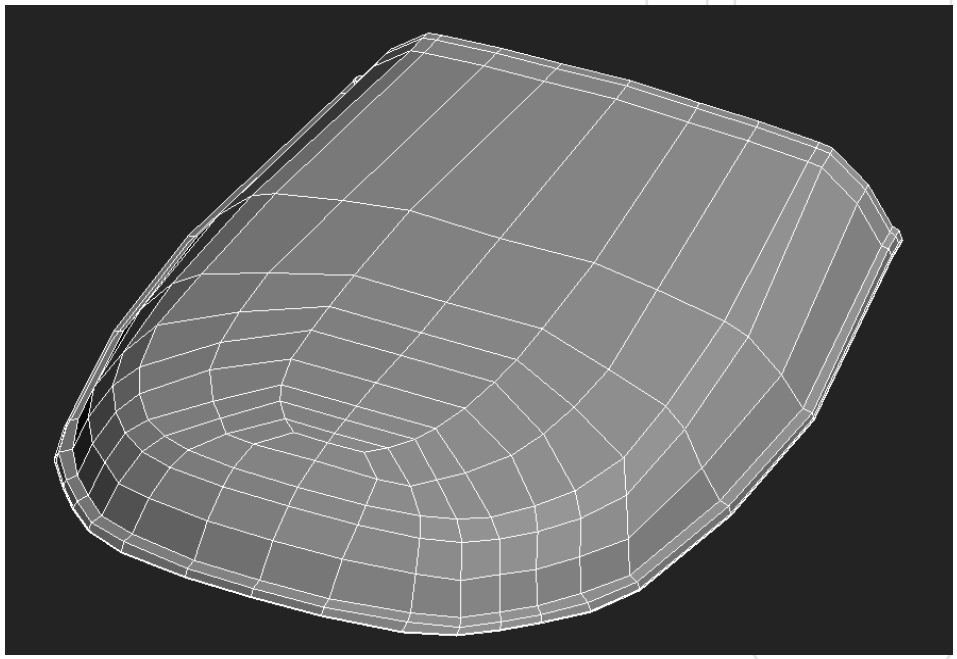


fig 23

Once again, my picture wasn't good enough, and my first attempt wasn't good enough either. So, I have just cut some part of the mesh on, to match a picture I finally found on the web. Maybe if you have a problem, you can make new edge loops, etc. There is a little extra piece here too, now (fig 24 - 29).

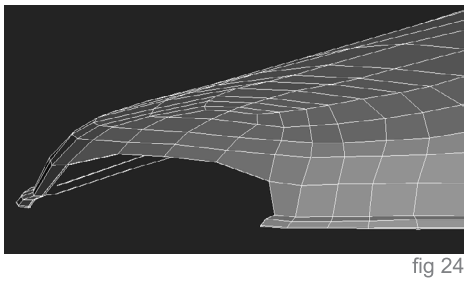


fig 24

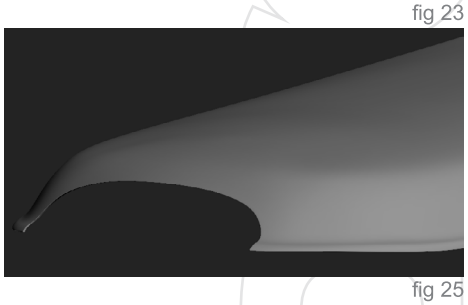


fig 25

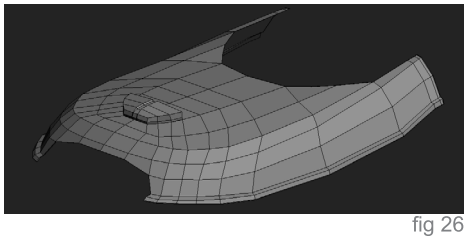


fig 26

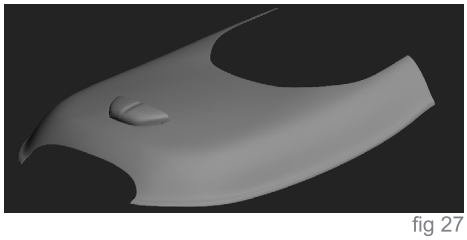


fig 27

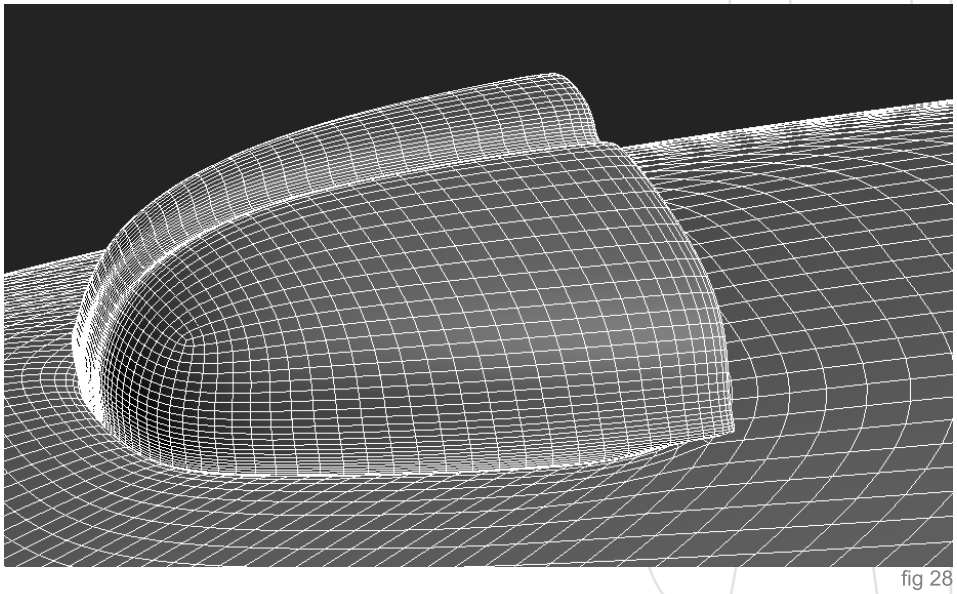


fig 28

Details

Difficulty - variable

Importance - 10

Difficulty - 1

And now, the details, for the fun :) . Just some extrusions (fig 29 - 31).

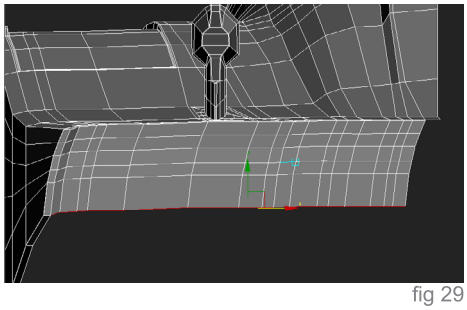


fig 29

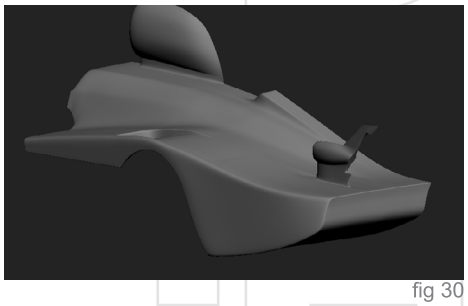


fig 30

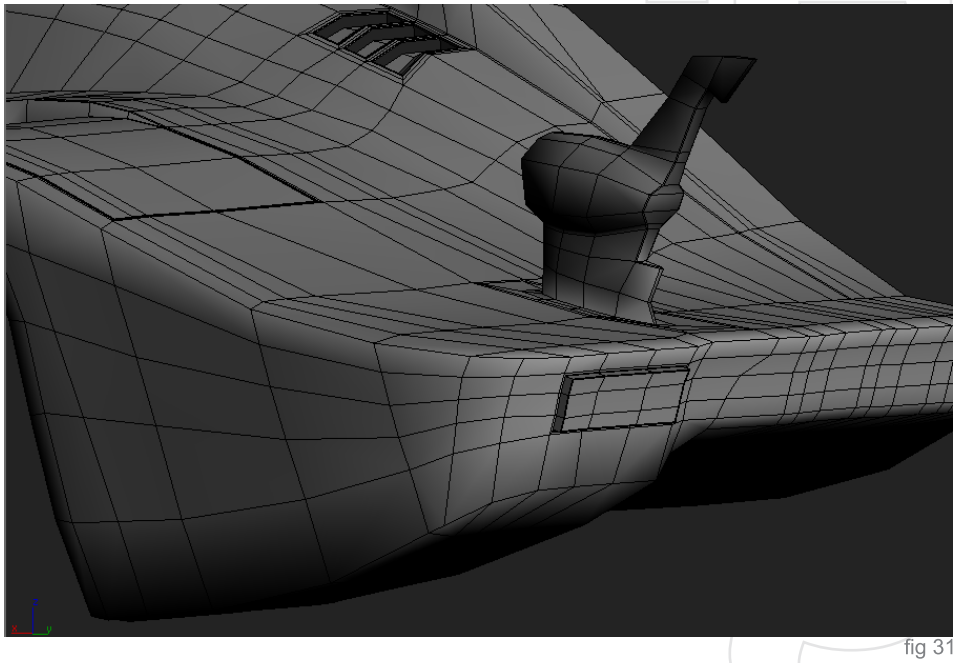


fig 31

Difficulty - 3

Not fun at all, the fuel trap. It is a technical challenge to make it using just quads but I managed it (32 - 36).

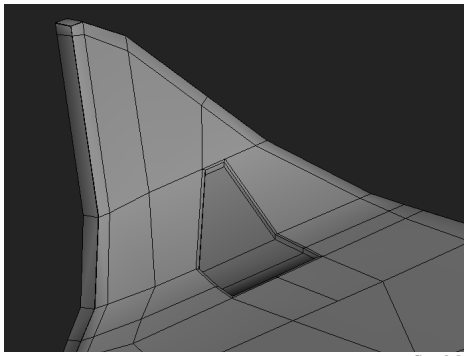


fig 32

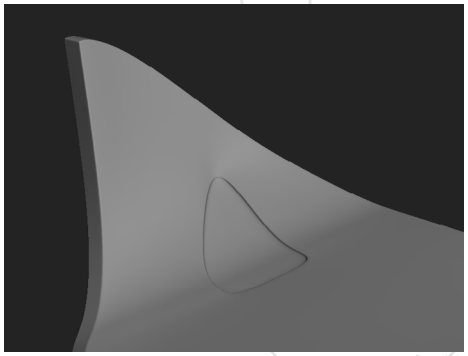


fig 33

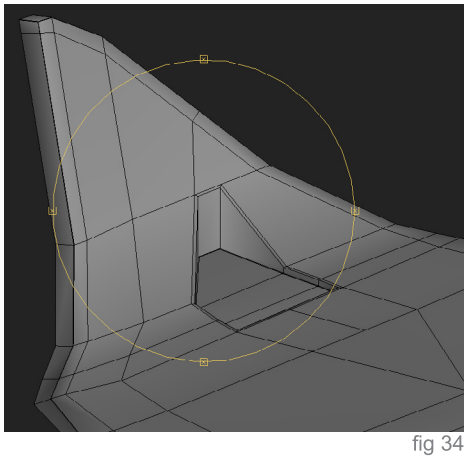


fig 34

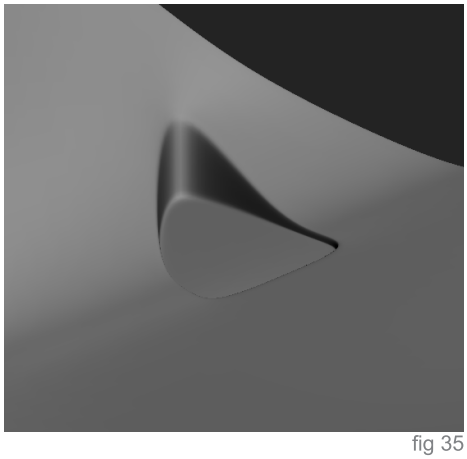


fig 35

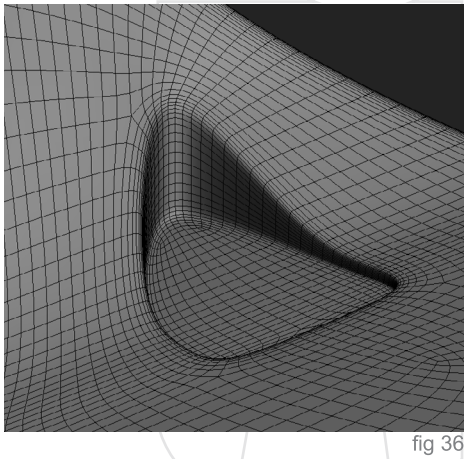
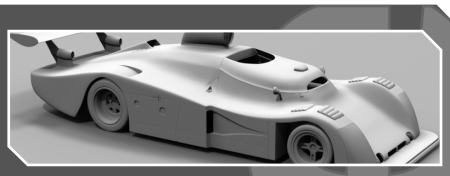


fig 36



Difficulty - 2

Another important part : Not really a major problem, because the surface is plain, you can think about it whilst you make the car too, but it's not difficult to add some new edges. (fig 37 - 40)

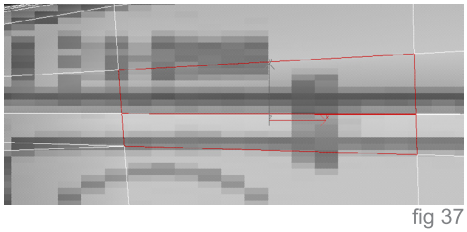


fig 37

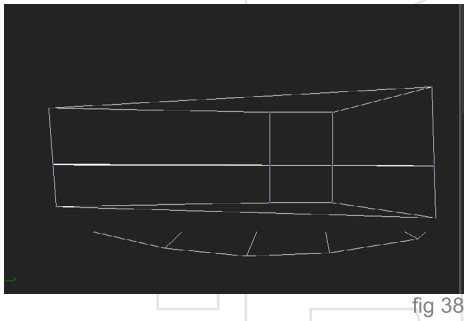


fig 38

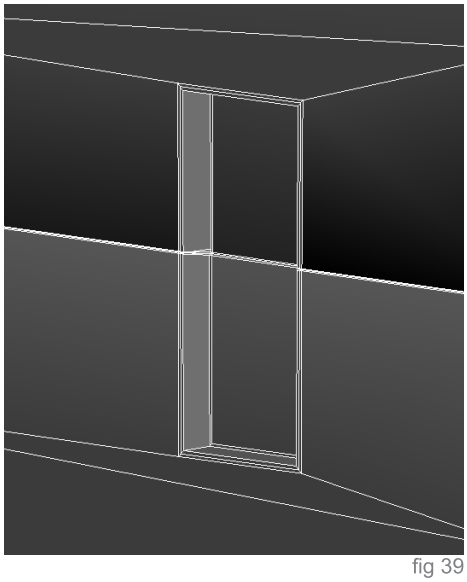


fig 39

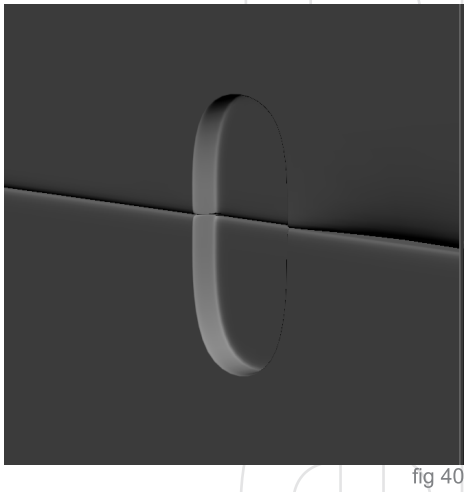


fig 40

Difficulty - 1

The same applies, for all the caps (fig 41 - 44).

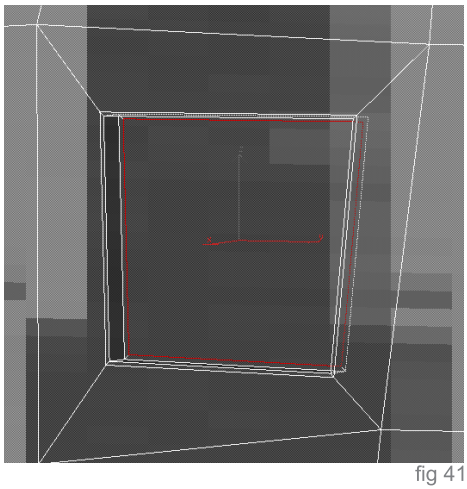


fig 41

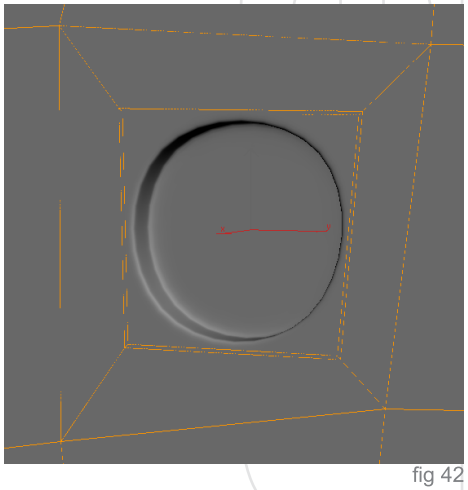


fig 42

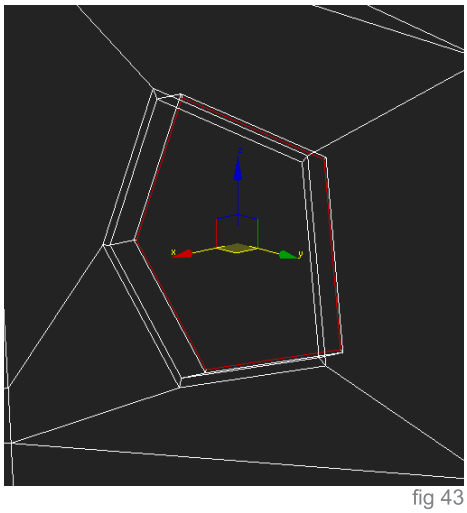


fig 43

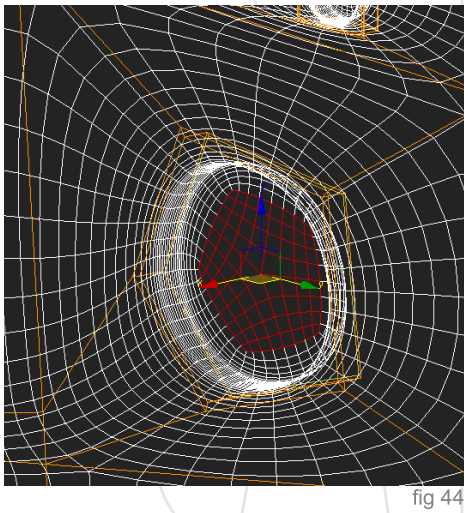


fig 44

Difficulty - 2

And finally, the last details. My 1/43 scale maquette wasn't detailed enough to make every part, but it's good enough (fig 45 - 48)

Ok, i put all picture i took when i model the car :)

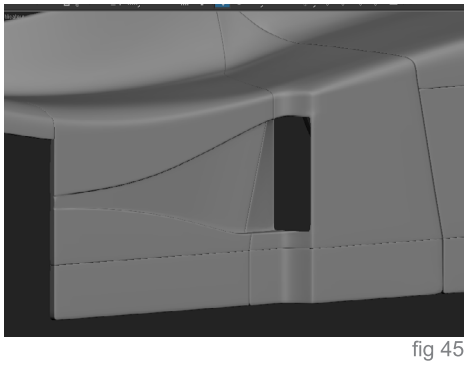


fig 45

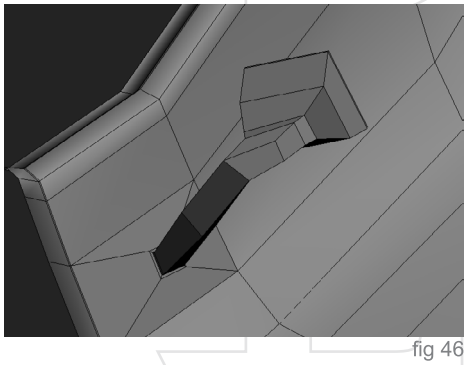


fig 46

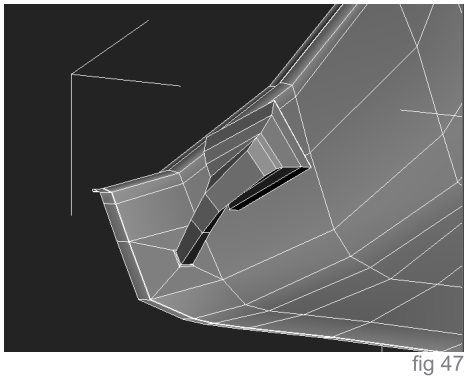


fig 47

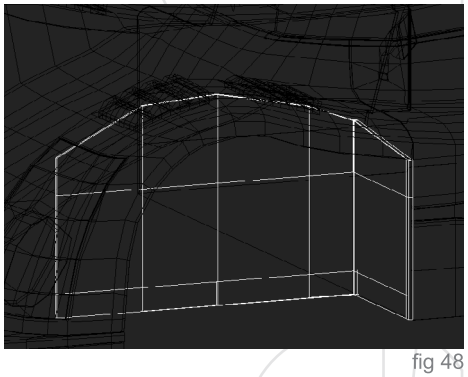


fig 48

Conclusion

Umh..... I hope the tutorial is detailed enough, I copied some screenshots each time I thought it useful. The main modelling took me around 5 hours, and, to get all details and enhancement, nearly 10 hours for the whole car (with rims). I advise you study all the images, as my English is poor. I hope you found what you want. But see picture first !!, and all wire.

For the specification of the mesh; near 7Kp for the low poly shape, 10Kp per wheel (rim+tyre), and for rendering, two iterations in meshsmooth, resulting in 300Kp.

I didn't care too much about the real form of this car, because of the little maquet, so, I didn't use real values for the chamfers, so the car is too sharp in areas... But, I saw the real one in a French museum, and all four Renault cars did were different (not the same chassis, or engines), so, maybe it's ok despite what pictures you find.

I did two small clay renders, to finish the car (texturing+shadering+lighting) (fig 49 - 50).

Thanks for reading, any questions please email me using my details below.

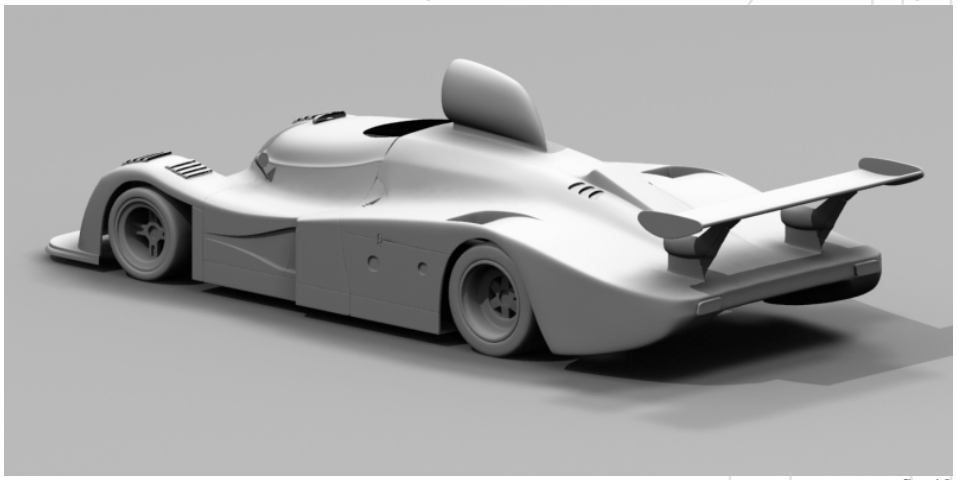


fig 49

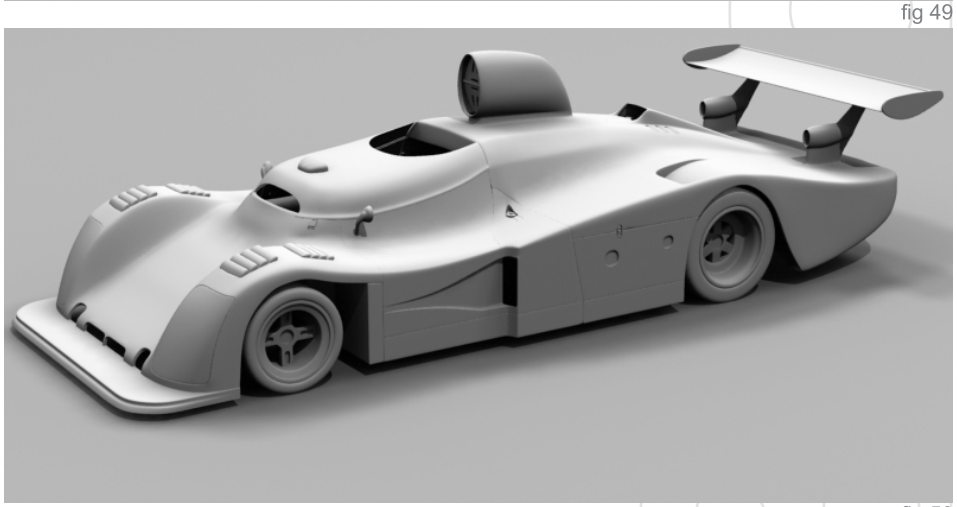


fig 50

Tutorial By :
Dettore Olliver Thomas
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http://tyio.3dvf.net/

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Low Poly Character

Welcome to our ongoing tutorial which will provide a step by step guide to building a low poly character based upon a model by Seong-Wha Jeong. Over the next eight months we will be covering how to build, map/unwrap and texture the character.

3DSMax Version
Page 123

Cinema4D Version
Page 137

Lightwave Version
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Maya Version
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Softimage XSi Version
Page 180

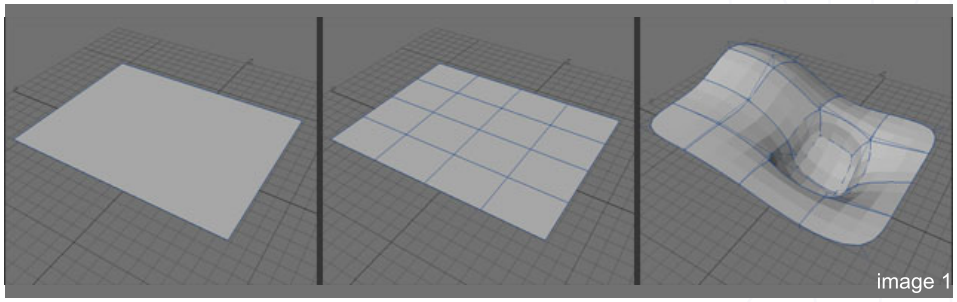



Making of
Comatules
By
Jean-Marc Labat

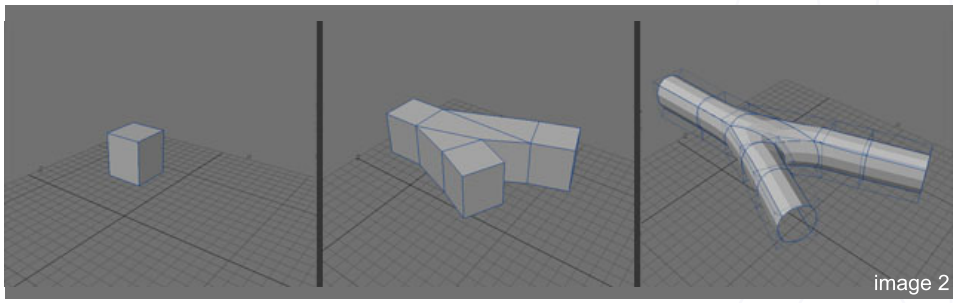


Comatules

The scene “Comatules” was inspired from real comatules living between Africa and Australia. It used Lightwave 9 and Photoshop. I also used F-Prime to get realtime feedback while lighting and texturing which was a great help.

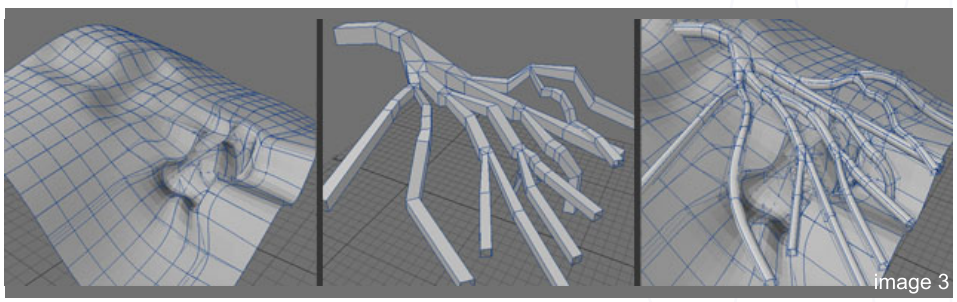

image 1

I first started with the ground. I created a plane, subdivided it (Shift+D), turned it into a sub-patch (TAB key), then modified it by moving a few points and using smooth shift (shift+F) (image1).


image 2

The main tentacles was next created from just boxes joined together using the bridge tool (Construct\Combine\Bridge), all in sub-patch (image2).

After working more on those 2 parts, I put them together and modified them in order to have the tentacles rest on the floor. I also added some medium-sized rocks which were made of some smooth deformed boxes (image3).


image 3



When finished with that, I started working on one of the comatule. I created some points, made a polygon of them (P), extruded it. Then using the Knife tool (Shift+K) I added more faces where I needed it (image4).

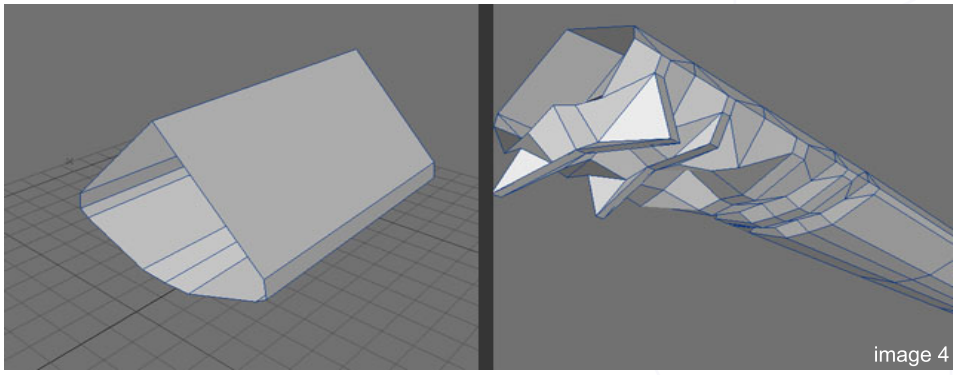


image 4

After moving around some points, I selected the points of the bottom part of the comatule, then applied a “Jitter” deformation (Modify\Transform\ Jitter) to add some randomness (image5).

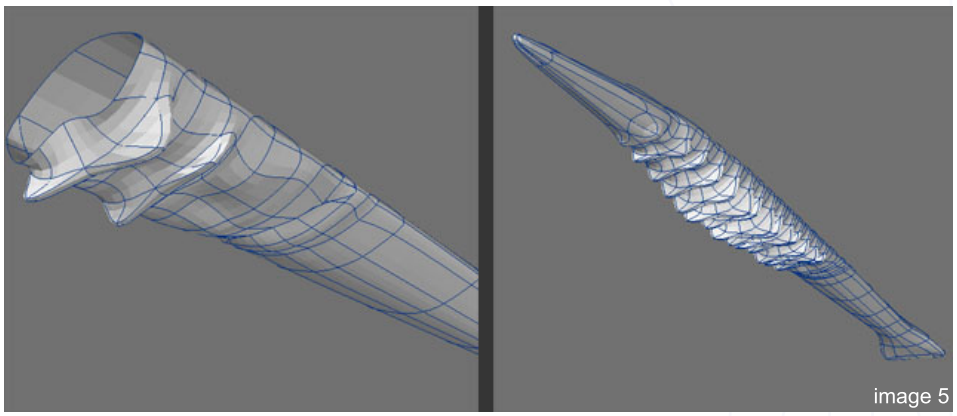


image 5

Once the comatule was done, I added the bones using the simple ‘skeletons’ (just draw the bones). I added around 20 of them inside the comatule (image6).

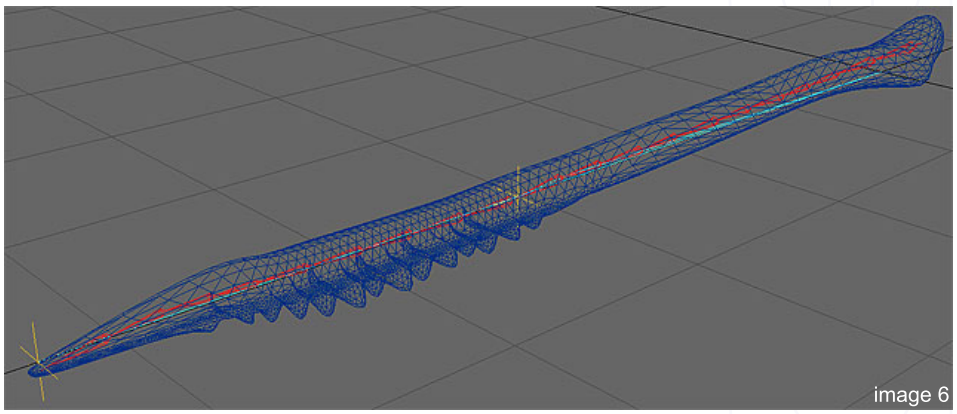


image 6

In layout, I added 2 nulls (the orange crosses in that image) and set them as IK Goals. To do that, in “controller and Limits” in the motion panel (shortcut M) make sure the Heading, Pitch and Bank are set to Inverse Kinematics. Then select 2 bones and target them to the 2 nulls. (in the same motion panel) 1 IK goal would have been fine but I added 2 to have more control (image7).

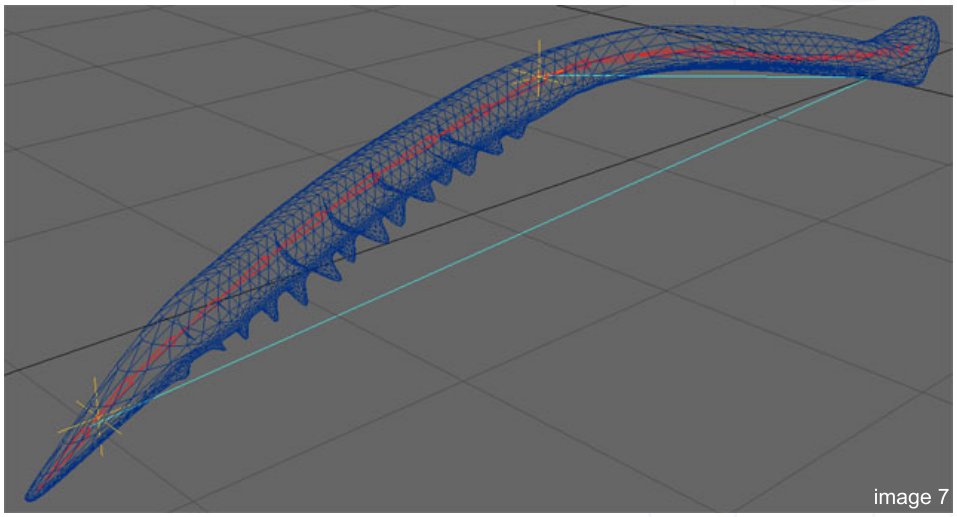
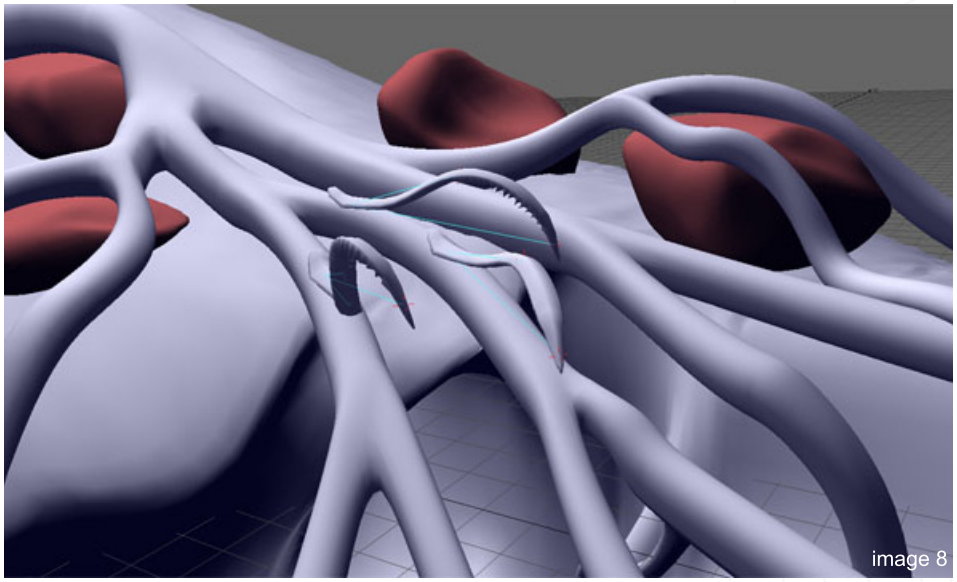
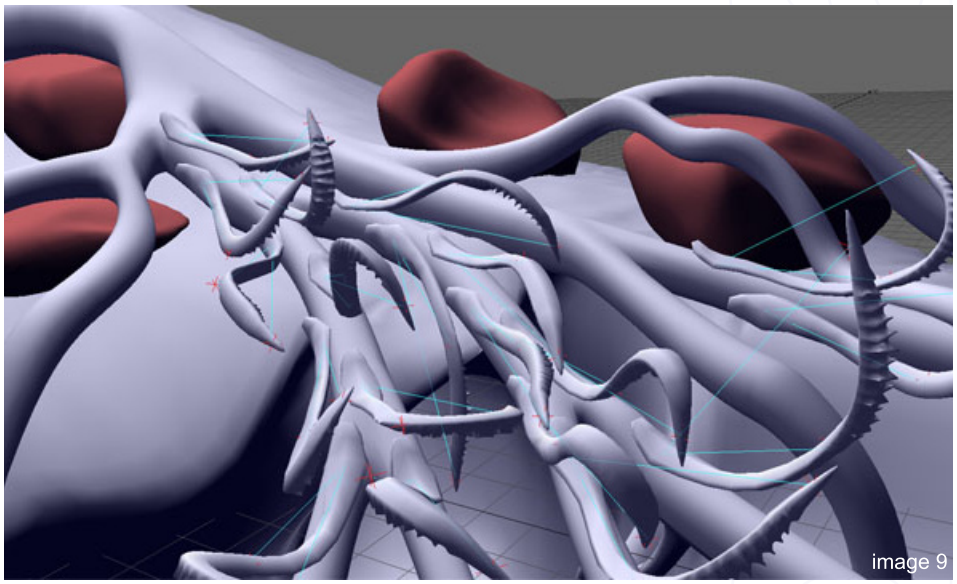


image 7

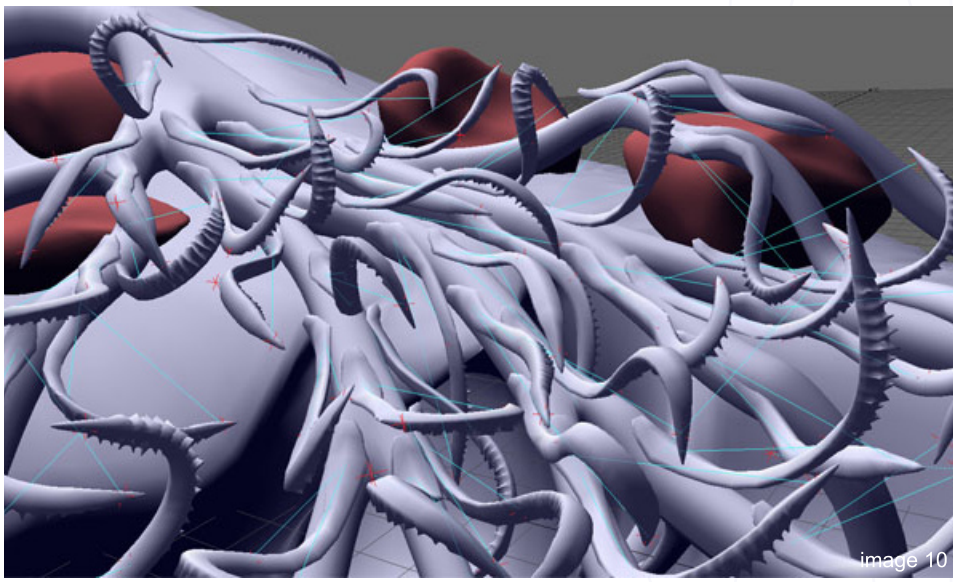
I opened the main scene file, and started placing the comatules on the main ‘tubes’, Adjusting the IK goals every time, to make each comatule a different shape (image8).


image 8

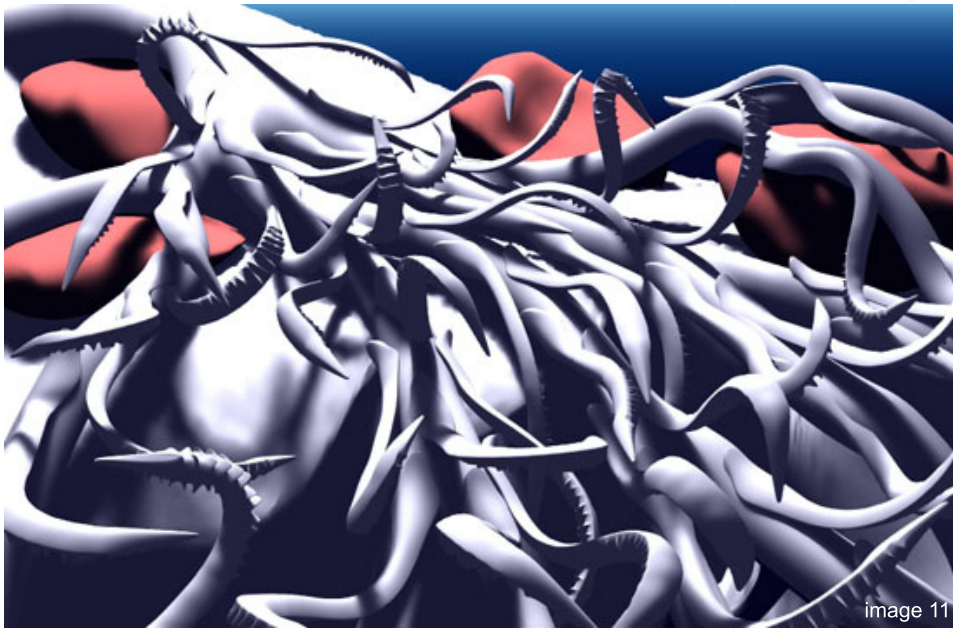
More comatules… (image9)


image 9

They are all there. At this point, there were a total of 903 bones for 39 comatules (image10).


image 10

I started lighting the scene by putting a large area light pointing down (Light quality 3 with shading noise reduction On). I also added a background image (image11).

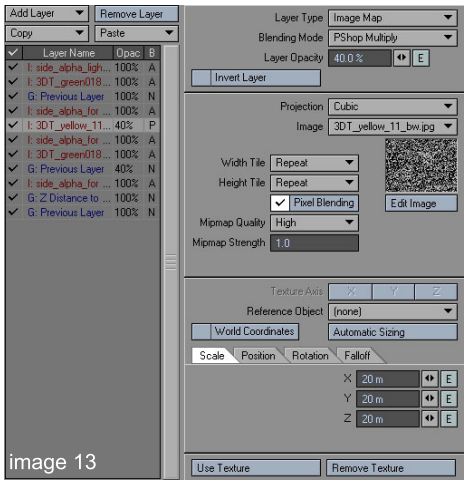

image 11

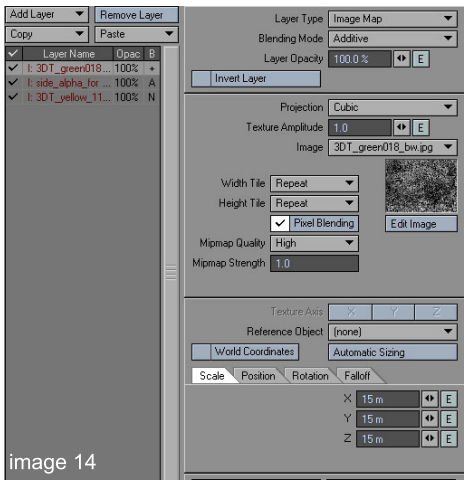
After that, I applied a linear fog which is using the background colours and then adjusted the lighting intensity (image12).

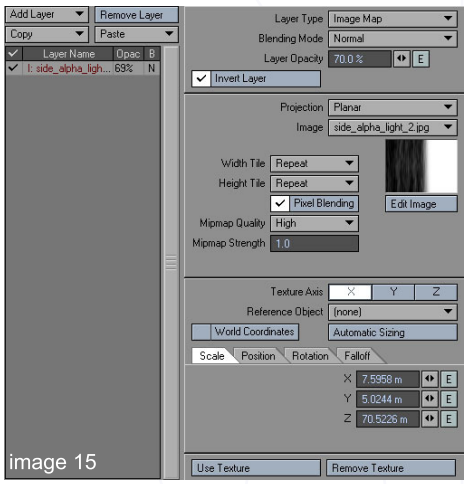

image 12

To add textures I did not use UV map for the object. I only used regular projections. Having all those layers separated in LW allowed me to change them quickly and see in real-time with F-Prime exactly how the comatule would look.

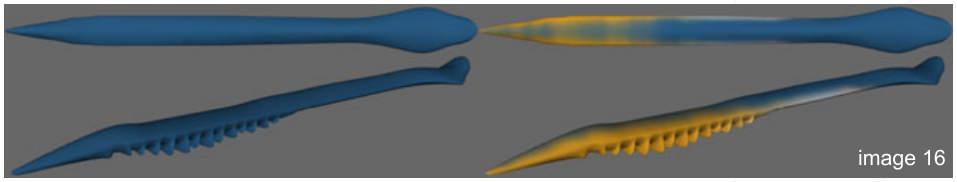
Colour attributes (image 13).
Bump attributes (image 14).
Luminosity attributes (image 15).

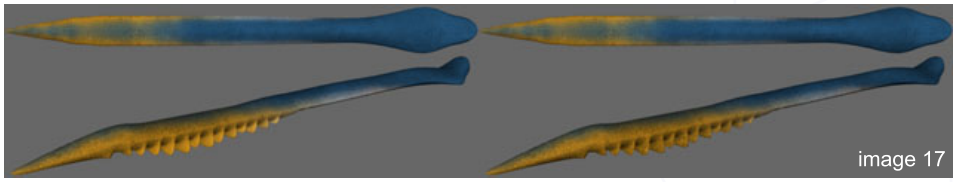

image 13

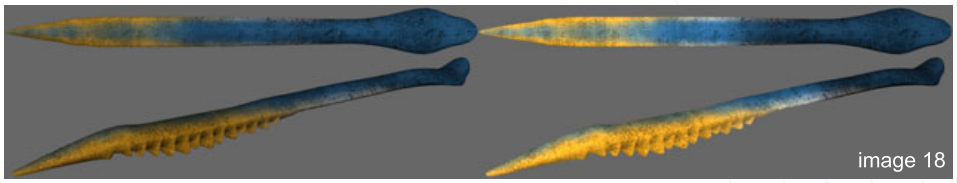

image 14


image 15

Comatule renders (image16, 17 and 18).


image 16


image 17


image 18

Then I textured the ground with another texture from 3Dtotal.com's Total Textures (image19).

Another render of the scene (image20).

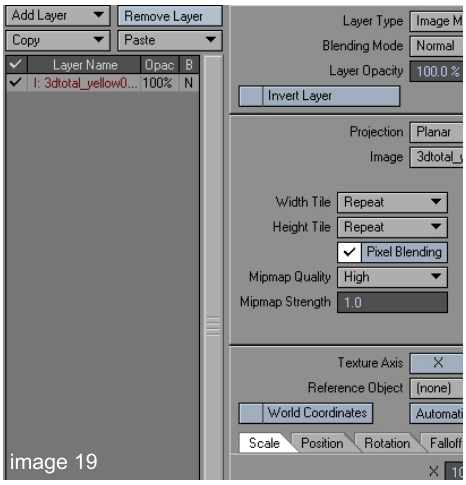
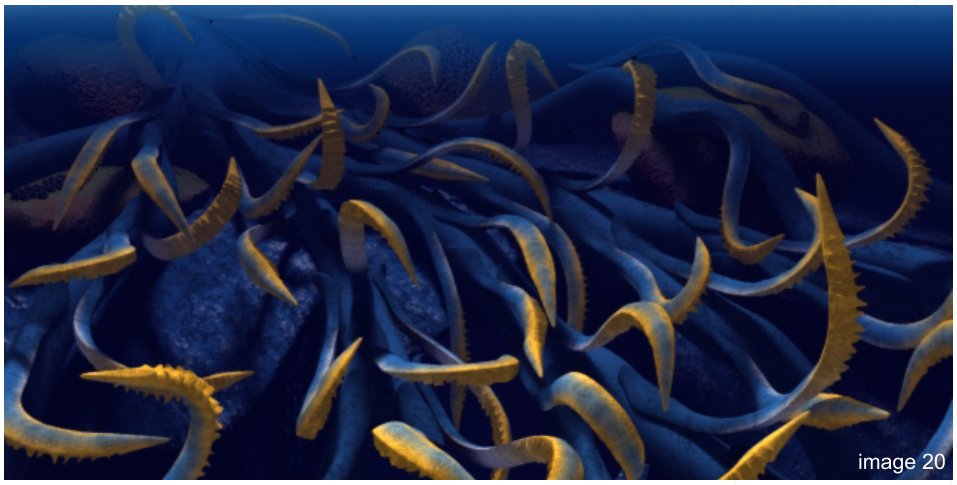
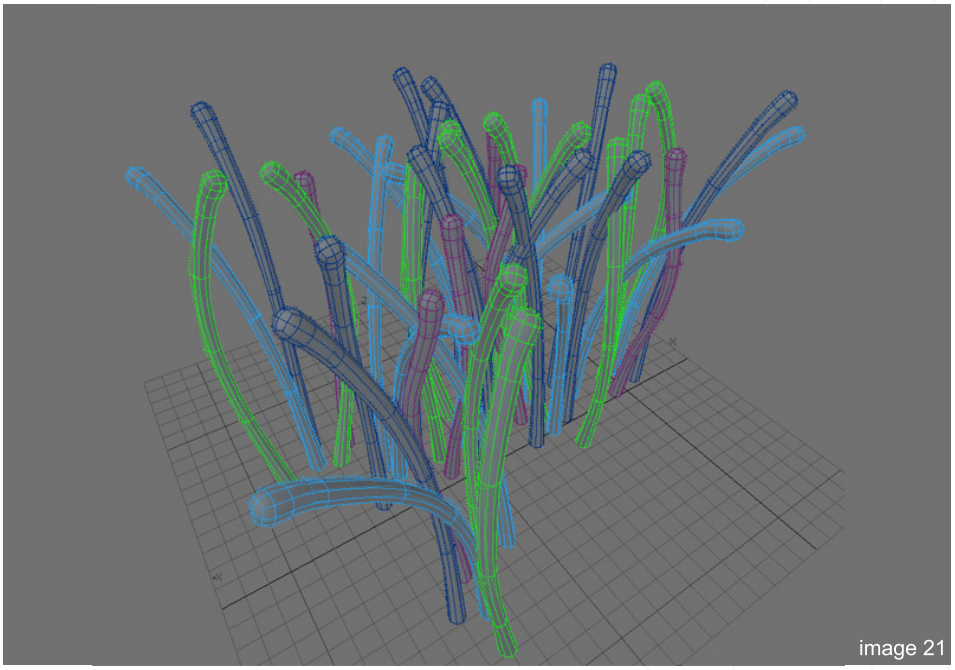


image 19


image 20

After that, I created another kind of underwater 'plant', quickly made a subpatch from a simple box (image21).


image 21



Then I added particles. These were made from regular points, which I created using the tool “spray points”. I made a big block of them, then copied them 4 or 5 times in the scene (image22).

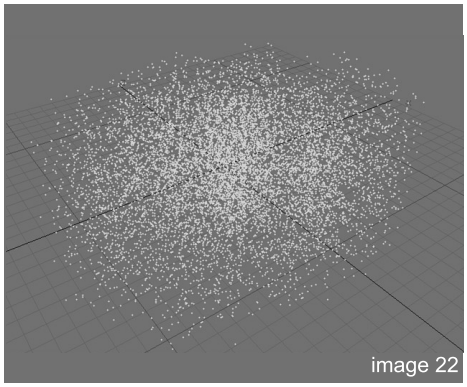


image 22

The last organism was this thing sticking to the rock, also made of sub-patch (image23).

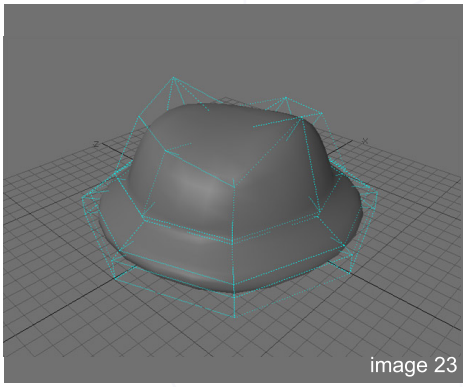


image 23

I added all those elements into the scene and added depth of field. Depth of field was quick to set up. Just remember to press shift+F9 which will show you a DOF preview in openGL (image24).

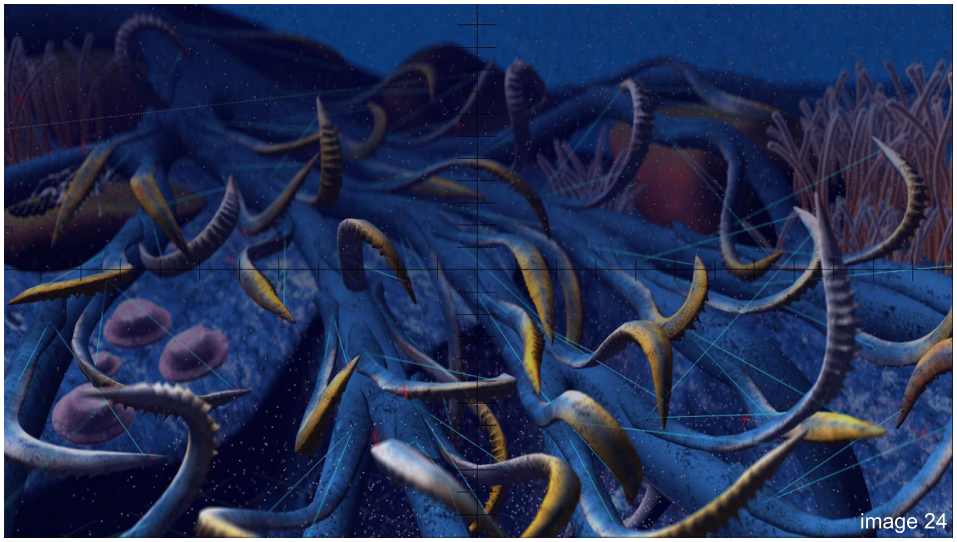


image 24

render (image25).

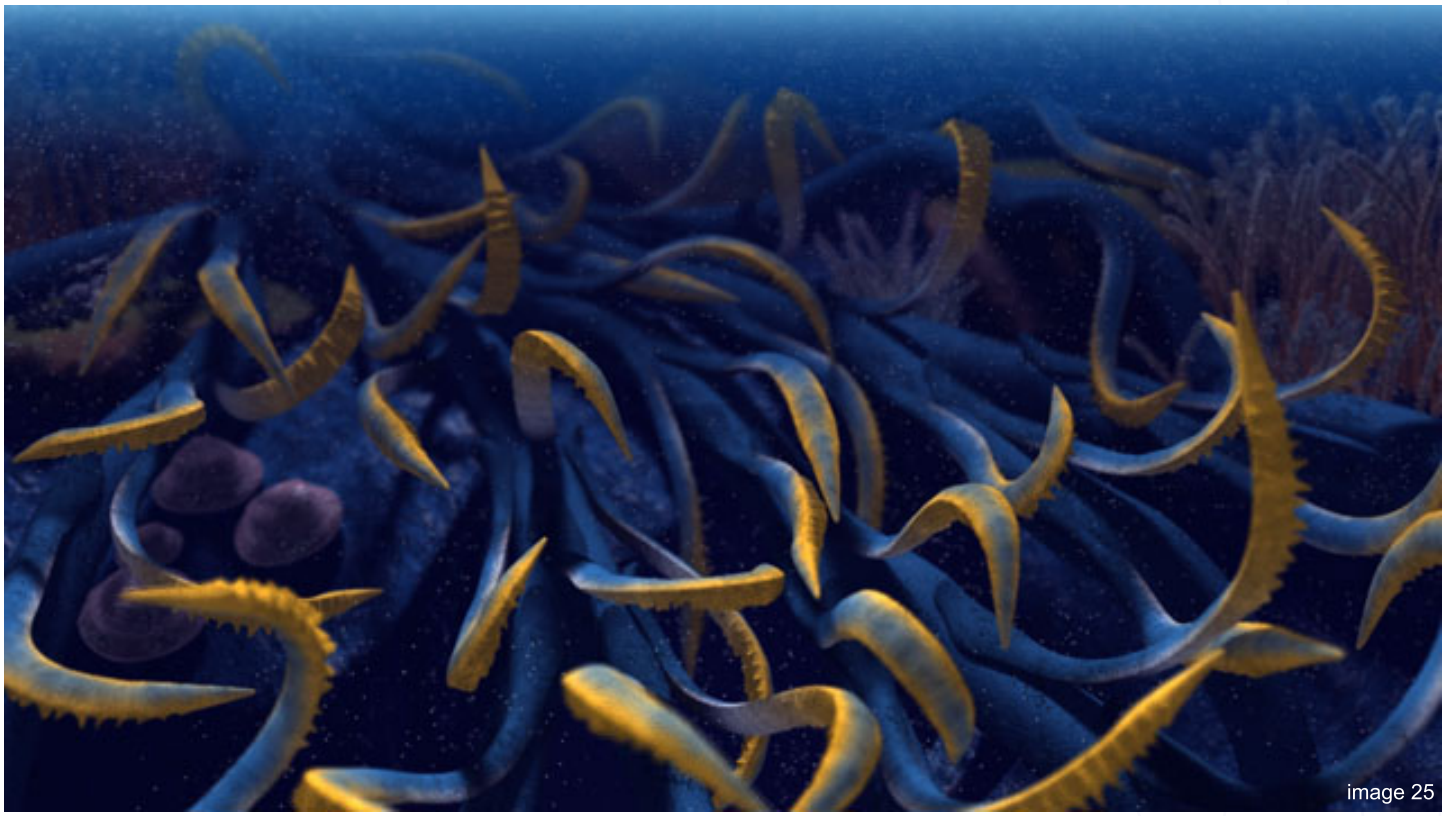


image 25



To finish the image in Photoshop, I adjusted the overall colouring by changing from a perfect blue water to a more green and dirty water colour. After, I made a copy of the image, applied find edge filter, inverted it and mixed the rendering with linear dodge. A slight blur was also added around the yellow (Most of those post effects were done later directly in LW to render an animation). (image26)



image 26

Making Of By :

JEAN-MARC LABAL

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MAKING OF:
THE CAPTAIN
BY STEPAN COZNE GRAIKOV

THE CAPTAIN

Hi Everybody, my name is Stepan “(o)ne” Grakov, and I’m 25 years old. My hobby is of course computer graphics...

I am going to show you how to create the making of “The Captain” - my lastest work - from modelling and rendering, to composing and post effects. This is not a “step-by-step” tutorial, here you will find explanations of my techniques.
To create this image I used ZBrush 2.0 for modelling and rendering, and Fireworks MX for composing and post effects (but you can use your favourite 2D software, of course).

Lets brake the final image into several pieces so you can see my modelling process (image 01).

Creation of the Captain

Head (from z-spheres to hi poly model).
First of all, I create the main, plus several additional, Z-spheres to match head details (eyes, mouth, nose, ears) and convert. Z-spheres’ adaptive skin to a Polymesh. Then I work on main forms in Draw and Move modes, edge loop some places to get more polygons. I don’t pay much attention to correct topology because it won’t be seen in the final image. (image 02, 03, 04 and 05)



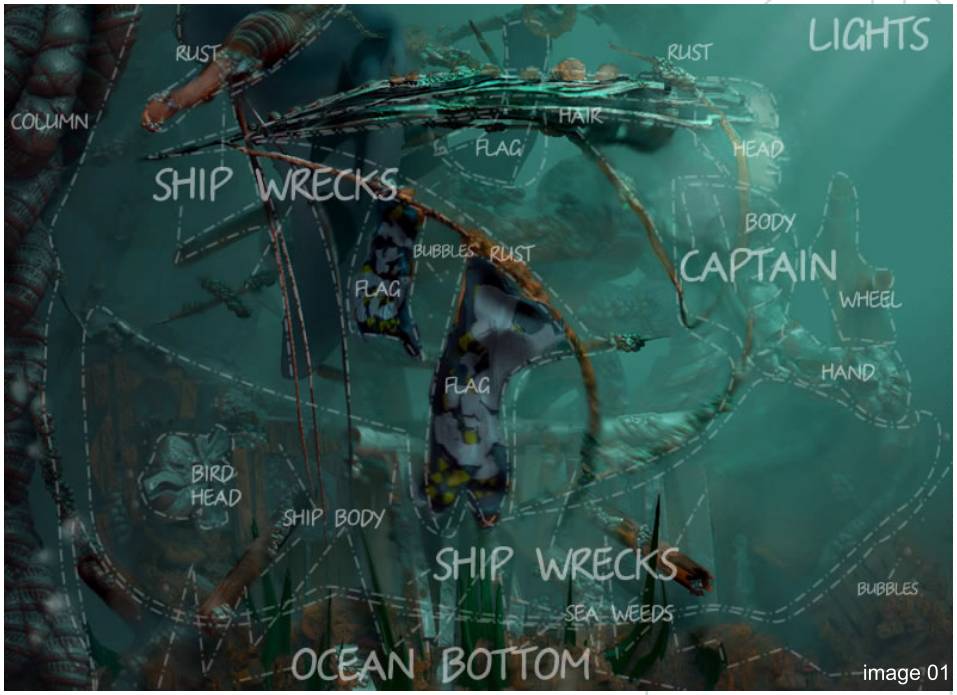
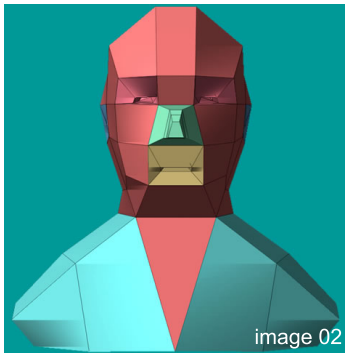
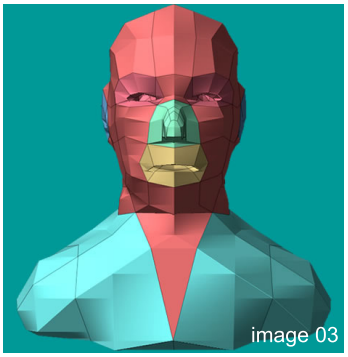


image 01


image 02


image 03

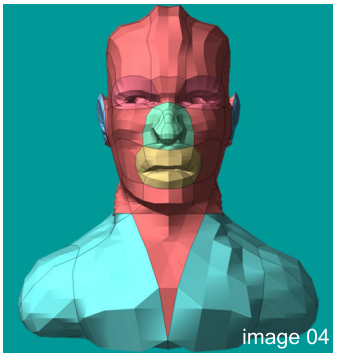

image 04


image 05

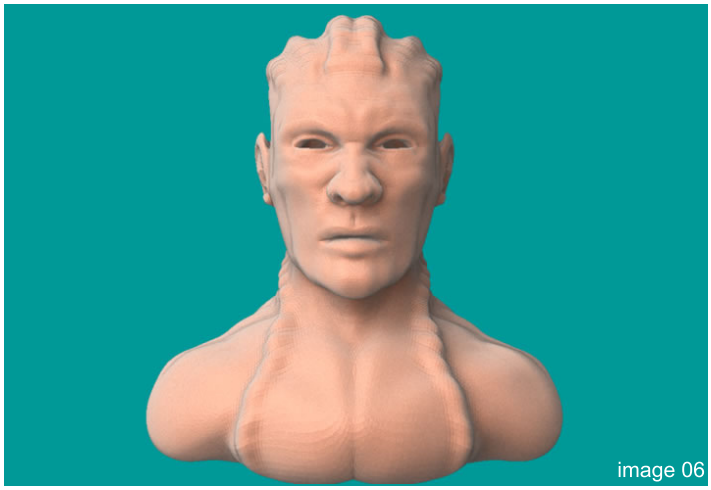


image 06

Here is the final head (image 06) with a skin material (by Antropus) which consists of 4 shaders. (image 07, 08 , 09 and 10)

Hairs

I take SnakeHook brush and start to pull “hairs” one by one right from the head, with variations. After that I take the Ring tool, apply a mask (Tool-Masking), inflate unmasked polygons (Tool-Deformations-Inflate) and place it to the hair’s base to make it look solid. (image 11)

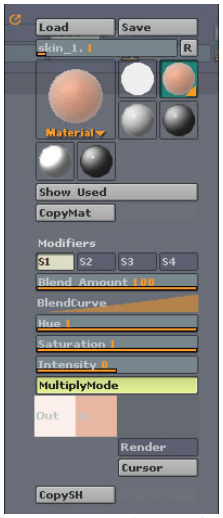


image 07



image 08



image 09



image 10

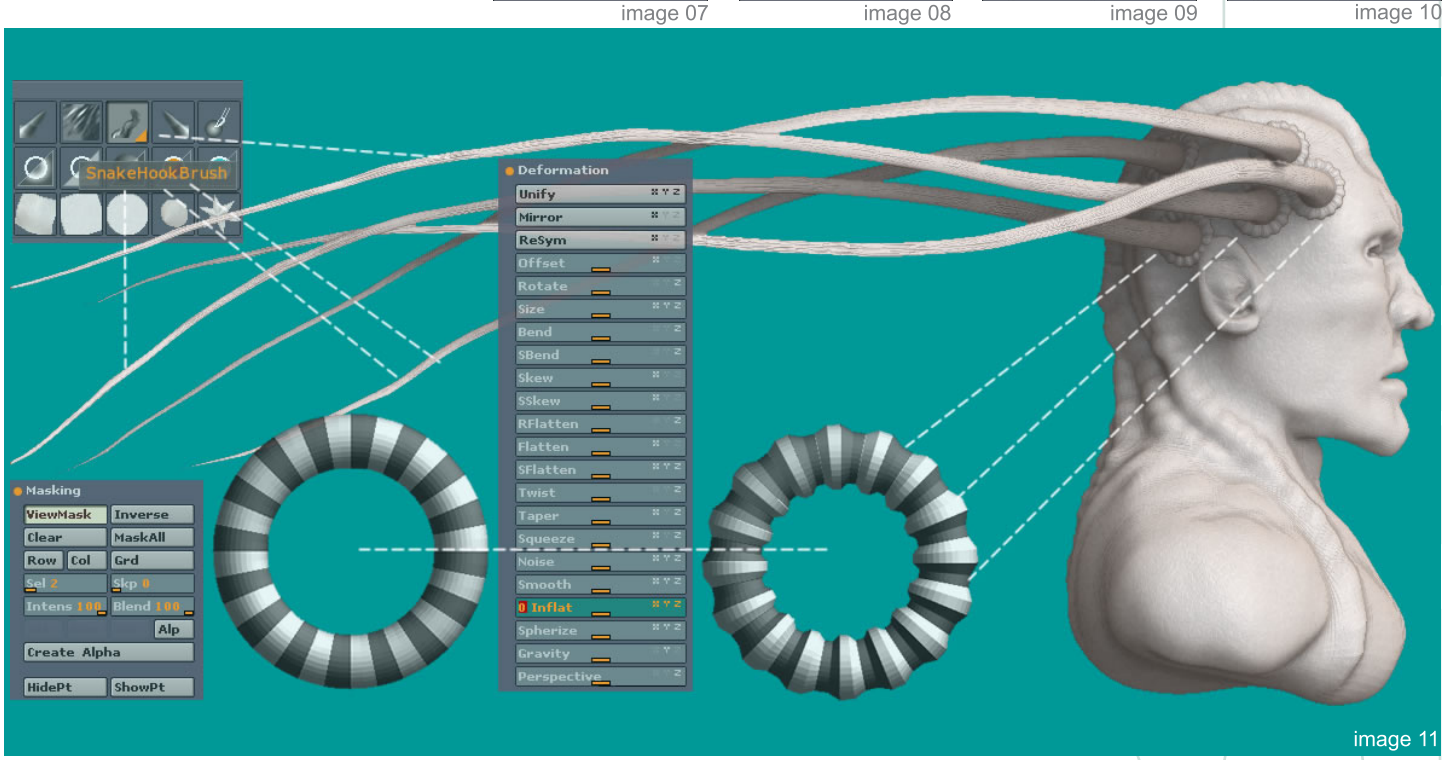


image 11



Body (base form mesh, details)

For base form I take the Ring tool, apply a mask (Tool-Masking), and inflate unmasked polygons (Tool-Deformations-Inflate). For details, I used a Terrain tool and start placing armour plates on the main form with some editing of single pieces to make them look more natural. Also I use deco-brush to add some details like plate edges, cracks, etc. (image 12)

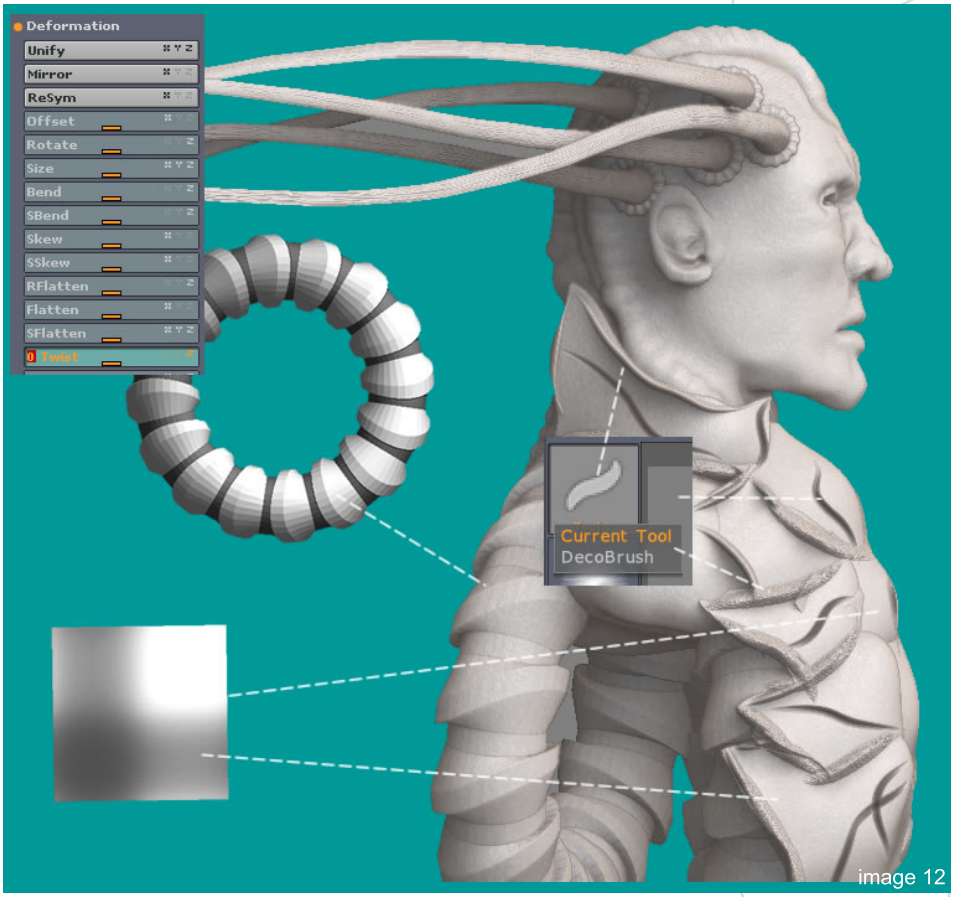


image 12

Hand (base form mesh, armour plates, chains, rust)

For the base form, here I used a simple Z-sphere chain. I don't need more because I will add details with the Terrain tool and the Ring tool. (image 13)

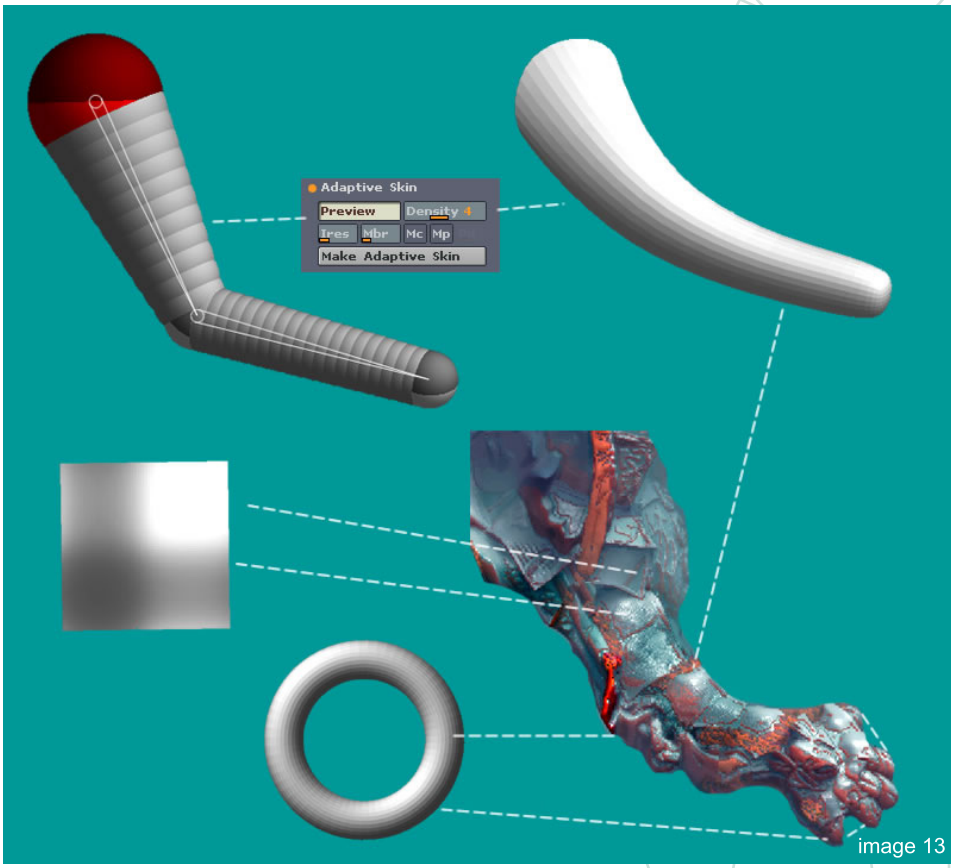


image 13

Wheel (primitives deformaiton and combination).

The base of the Wheel is deformed using the Ring tool. Other parts are modified Cylinders placed in particular places. (image 14)

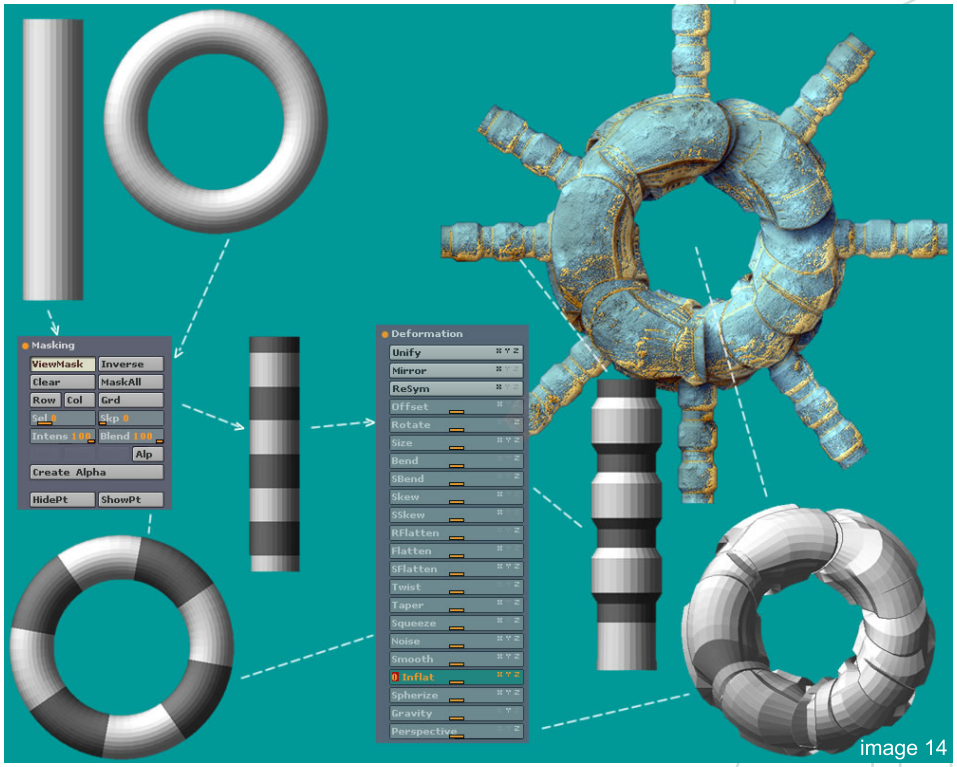


image 14

Creation of the Ship wrecks

Flags (base plane, deformations, details and colours).

For the flags, I take a plane and place it where it should be. Then I make some form adjustments within the Move mode (image 15).

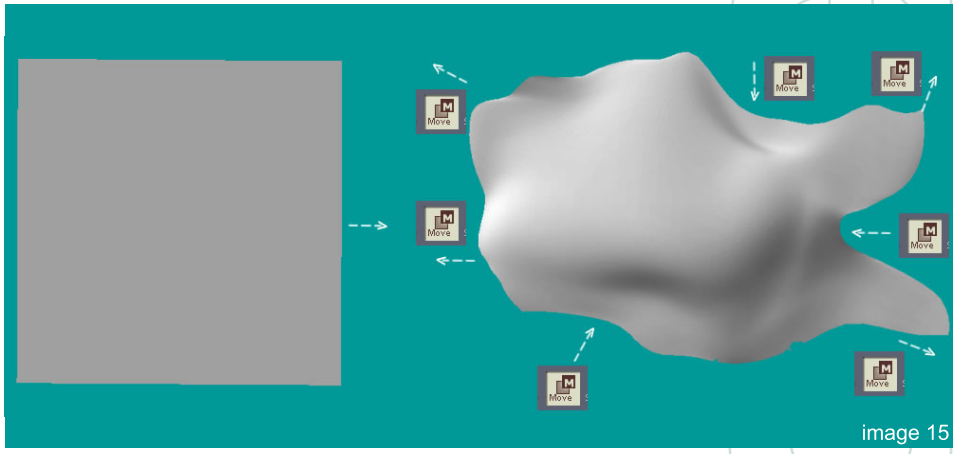


image 15

After that I add some colours using different primitives, such as stencil, with RGB-on, mode only (image16).

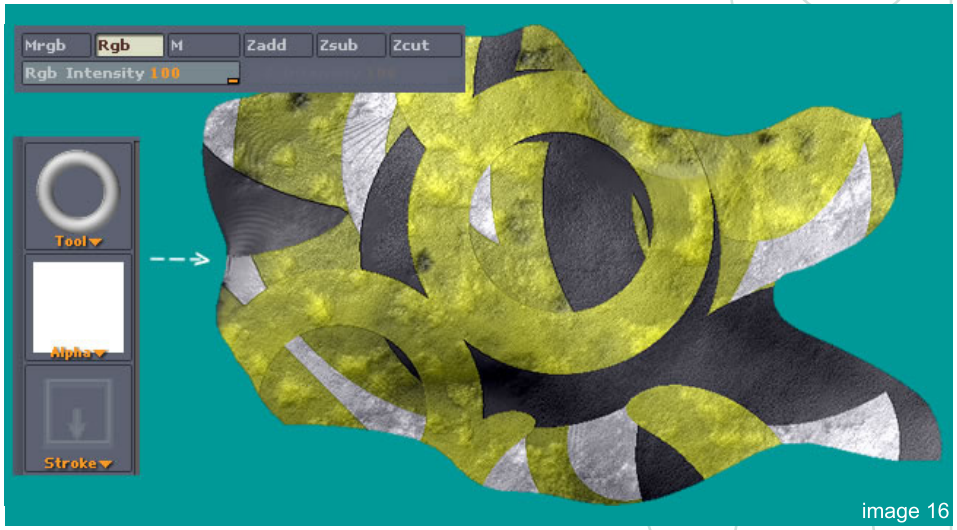


image 16

Different wrecks-like stuff (primitives and techniques)
I create the main forms with the SnakeHook brush again. Also, I create and drop some primitives to give the feeling that there are many different wreckage here (image 17).

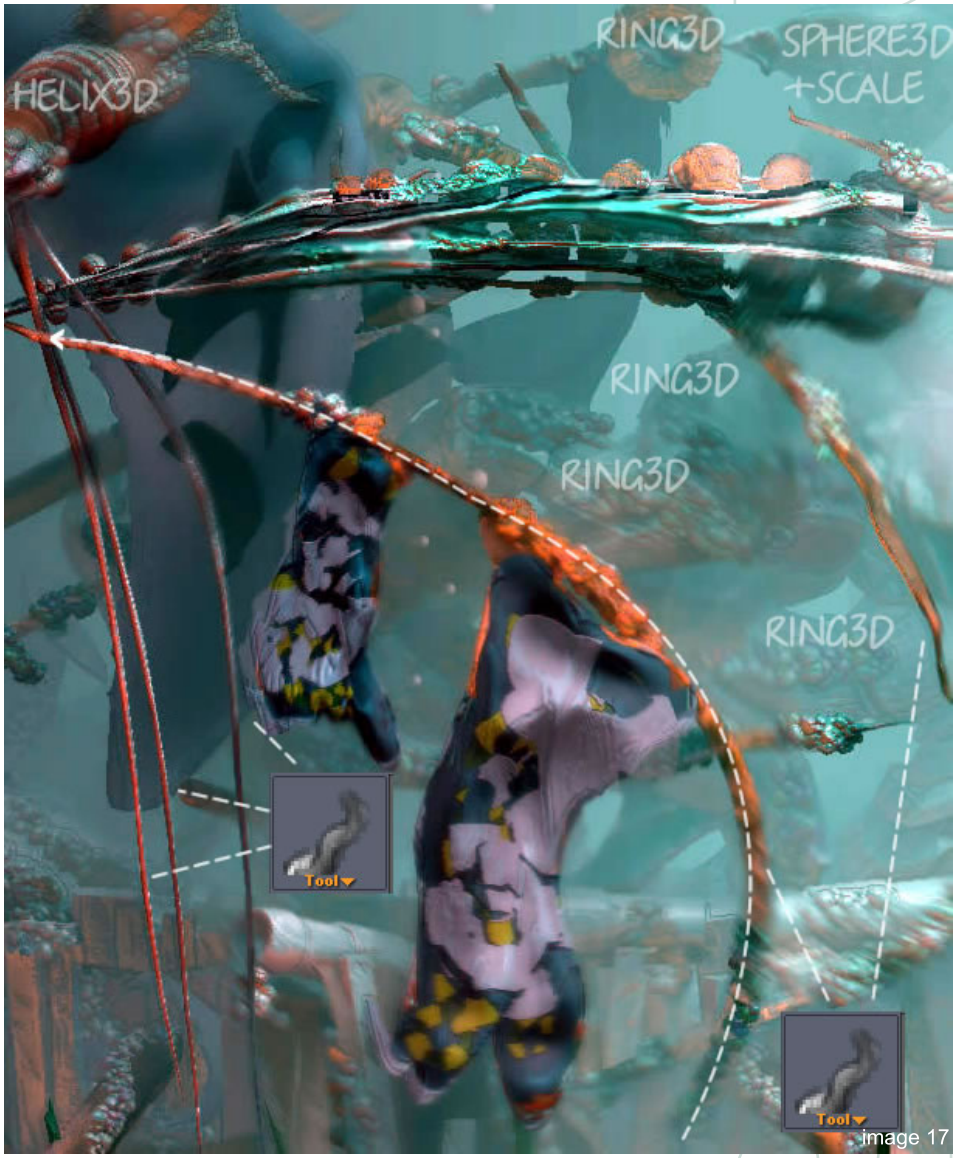


image 17

Rust-corals (primitives and techniques)
For making the rust (corals) I use a simple Spheres as a tool and Coloured Spray + Draw mode (image 18).

Ship's body (boards, cracks, etc)
The ship's boards are Cubes scaled to look like a board, then I place the boards one by one to make them look old and messy (image 19)

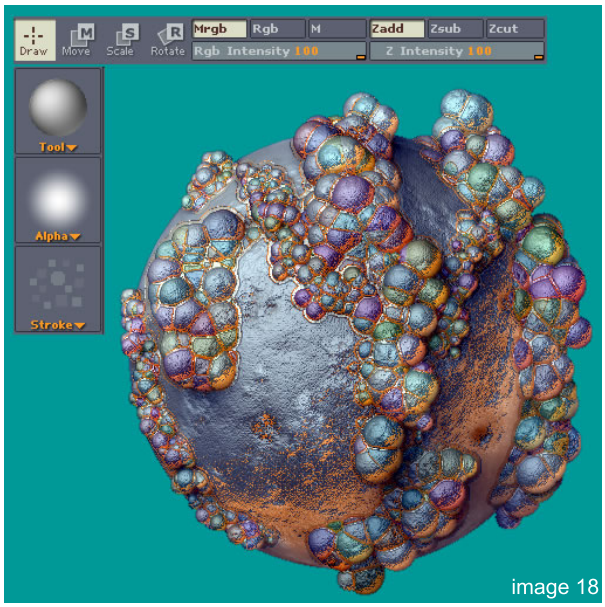


image 18

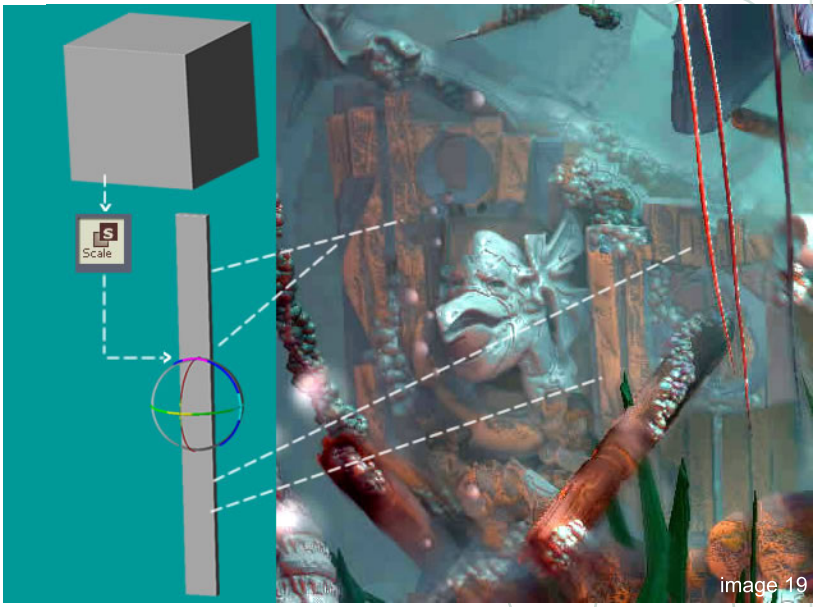


image 19



image 20

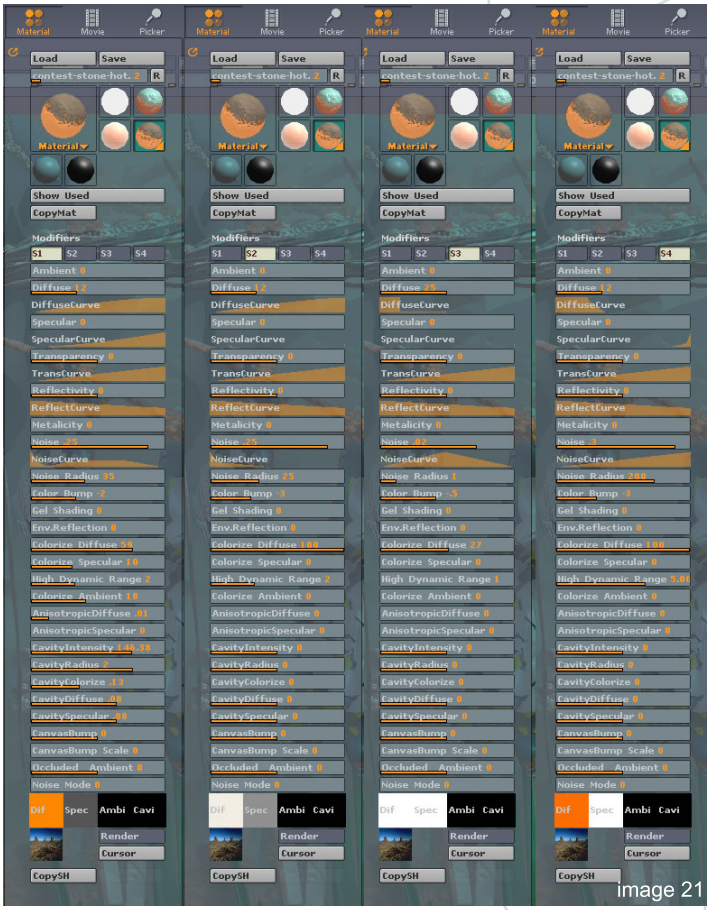


image 21

Shaders used for the Ship

Main Shader (image 20); Rust shader (image 21)

Creation of the Bird Head

3DS MAX low-poly model

First I create a low-poly mode, I in 3DS Max, from a box. With extrudes here and there, and a few vertex moves, I export to a .obj format (image 22).

Zbrush form refinings

The next step is to import my .obj file to Zbrush. To work on forms I use the Move mode with a very small brush size to move just one vertex at time (image 22).

Work on hi poly details

After I achieved the forms I want, I go to Projection Master to add more details. I use deco brush with different alphas to create the main skin texture, then some single spots etc. to make it look more interesting (image 22).



image 22

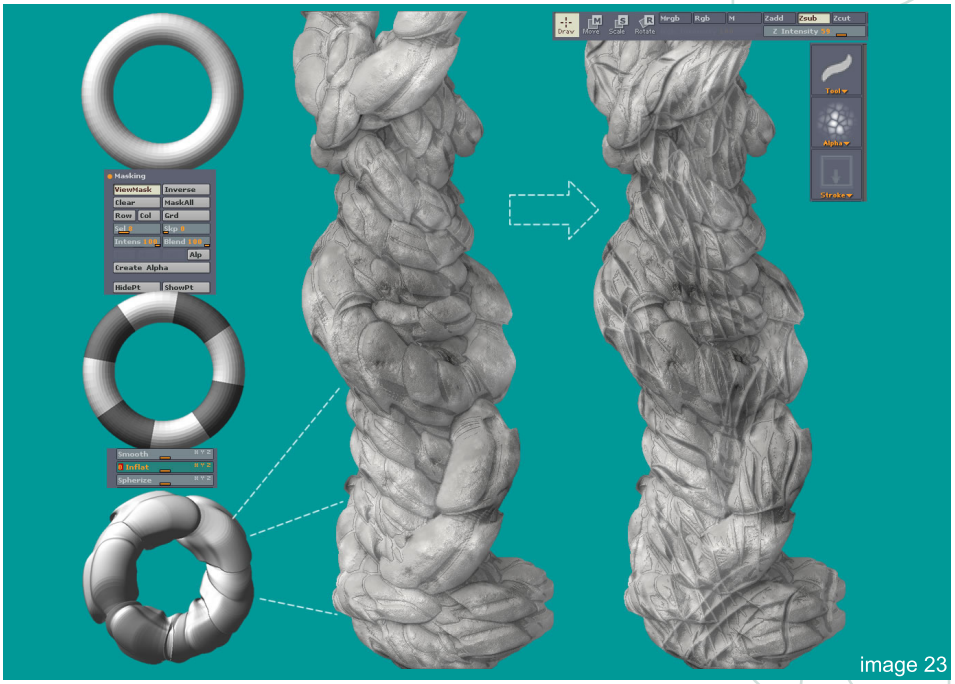
CREATING THE OCEAN BOTTOM

Column at the left (primitives, deformations, building, cracks)

This column consists of one base primitive - a Ring (with some modifiers applied - mask, inflate, twist) which repeats several times with different sizes and placements. After that I use the deco-brush to add some details to the whole column (image 23).

Sea-weed and ground

Sea-weed is made from a Cube. I move the corners to make them look like something biological, then I copy this and place it in different places at different angles. For the ground I use a Cylinder and Coloured Spray mode (image 24).


image 23

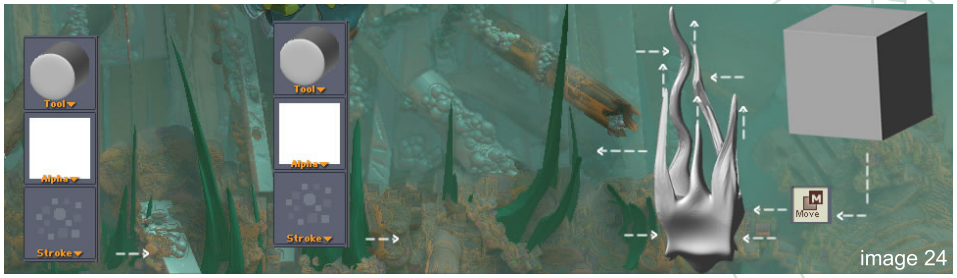


image 24

LIGHT AND RENDERING OPTIONS

Some tips for creating the underwater look (caustic highlights in some areas, etc)

To make my scene look like it's underwater, I use the highlight brush to make some areas lighter and darker (highlight brush + Alt) (image 25).

Light options (image 26).

Rendering options (image 27).

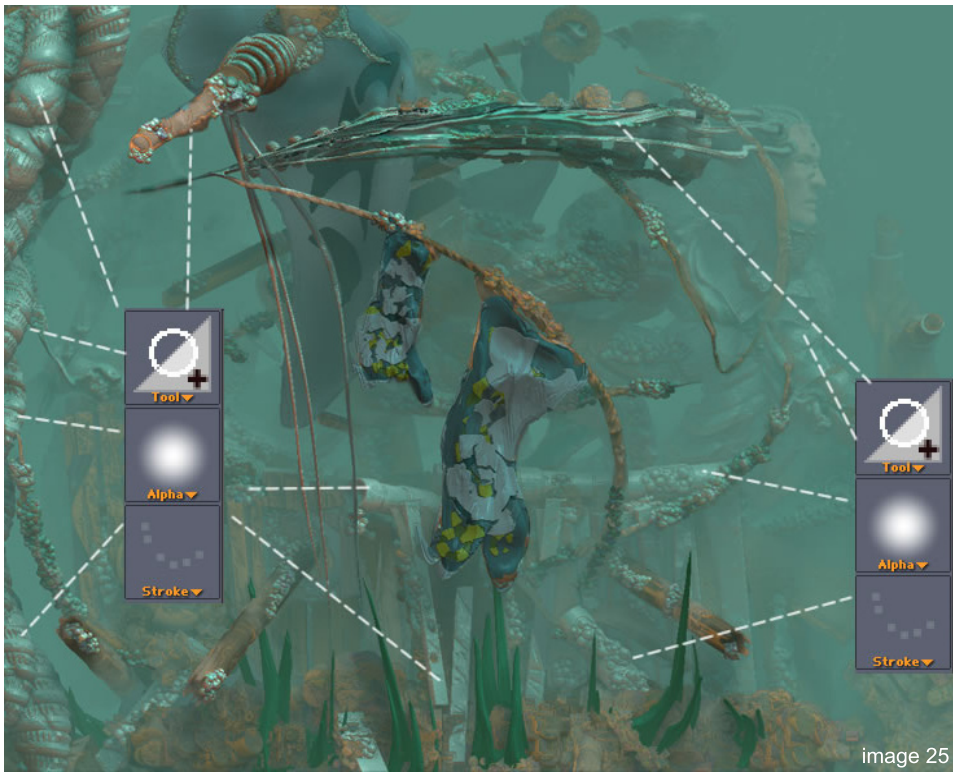


image 25



image 26



image 27

PostWorks

Combining layers, adding blur

After rendering with Zbrush, I got this image - it needs to have some post work done to it to make it look better and give it the right mood.

So, I start with adding a blur to some areas, and make the Captain's face lighter by copying and pasting it to another layer. Then I add brightness and contrast, and fade some areas to black with layers by changing transparency to add more mood (image 28).

Adding light rays

It's easy to add some light rays in Photoshop, or another 2D software. You can create something like this, just by adding transparency and blur for the desired result (image 29).

Well, that's all I can tell you about the creation of "The Captain". I hope you'll find some useful information in this tutorial.

Making of by:
Stepan (O)ne Grakov

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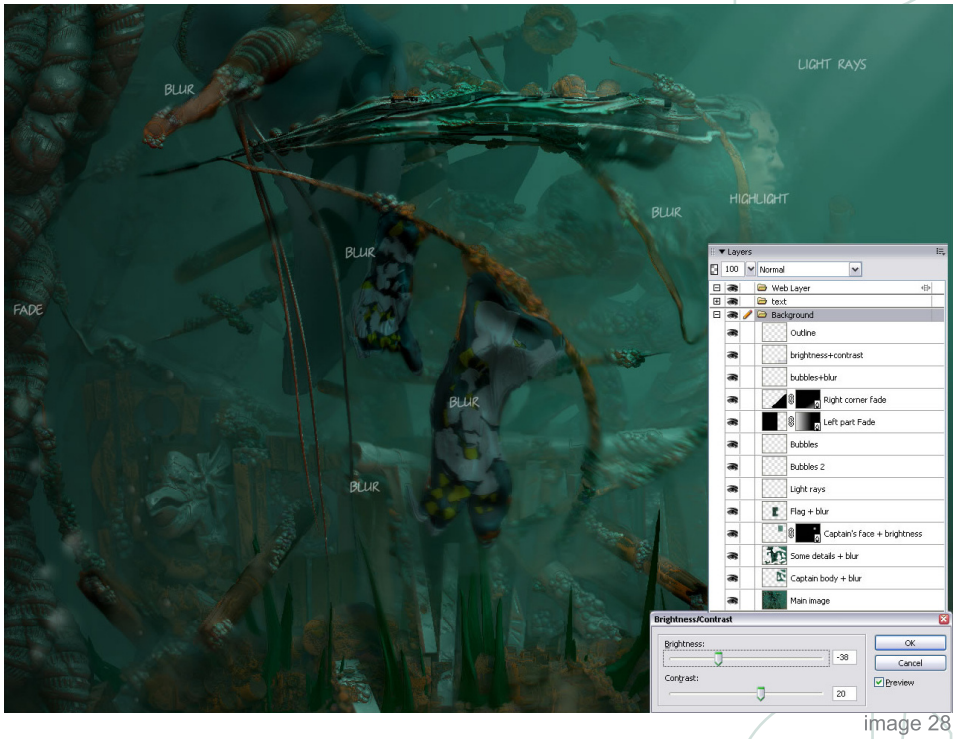


image 28

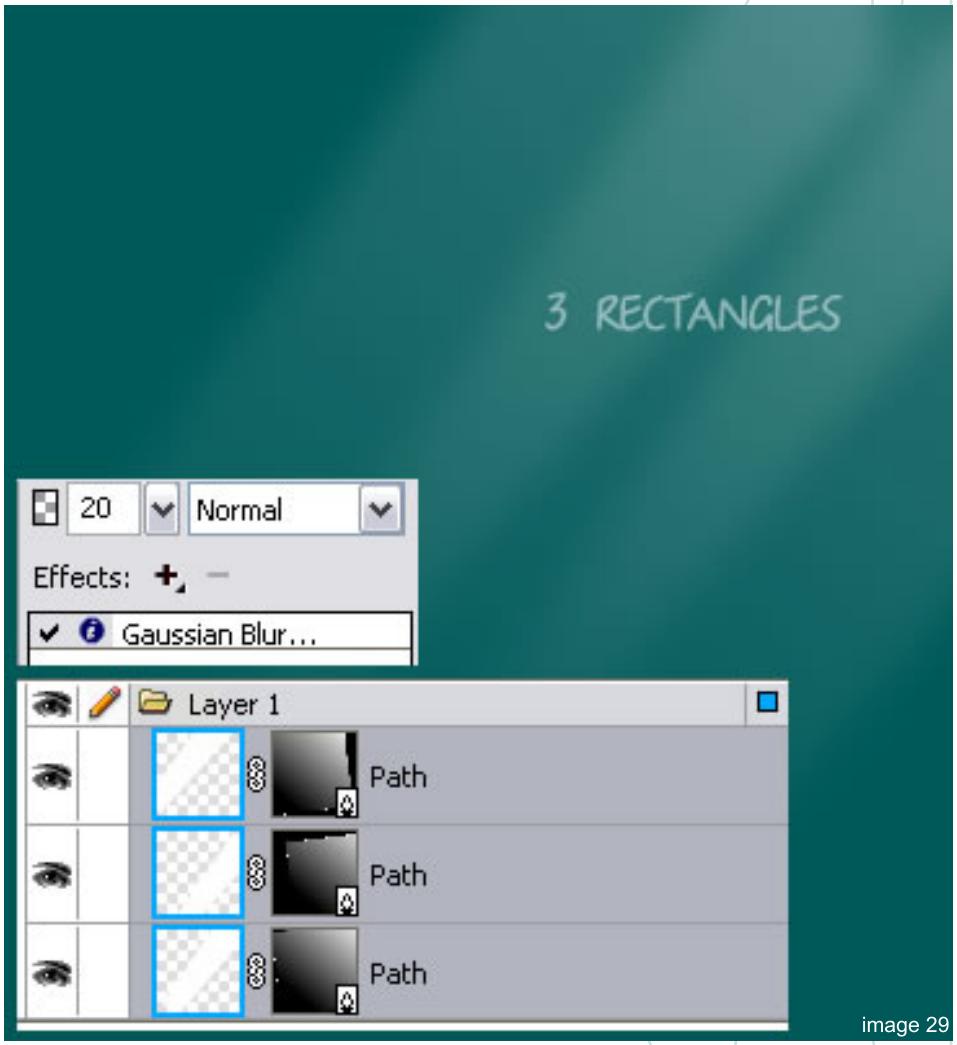


image 29

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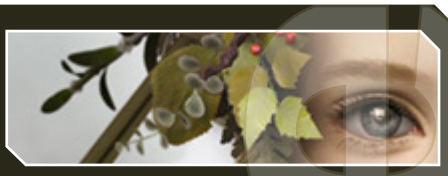
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A new face; talented Korean artist, Soa Lee, shows us how to create this fantastic Making of, using the 3DTotal Textures range...



MAKING OF EUROPA BY SOA LEE

Conception

I have found myself being fascinated by creating work on mythical and legendary characters, for as long as I can remember. I was always fascinated by paintings of great artists while I was studying at Art College. Even though I may not be using traditional art supplies, such as brushes and watercolour or oil paints, I always aim to create a similar effect utilising 3D graphic techniques. 3D characters are similar to that of fairy tales, in that they are waiting for the magic spell to be removed, as if they are waiting for the 3D animation artist to remove the spell… Wouldn't this ability be the true charm of 3D animation (image 1)?

Europa is a princess who has succumbed to the seductions of Zeus, who has been turned into a bull. I have carried out research on images of jewellery from websites and home shopping catalogues and drawn some sketches. Because Europa is in a relationship with a bull, I have created ornaments that are inspired by images of, or are at least indications of, a bull (e.g. brooches that have the shape of a bull's head, and a crown that symbolizes Taurus) (image 2).

After creating a body and a corolla for the head, I created rough images of clothing and ornaments, using Photoshop, on a nude rendering. Except for the image of Europa and the corolla, everything else is a rough sketch in image 3.



image 1



image 2



image 3

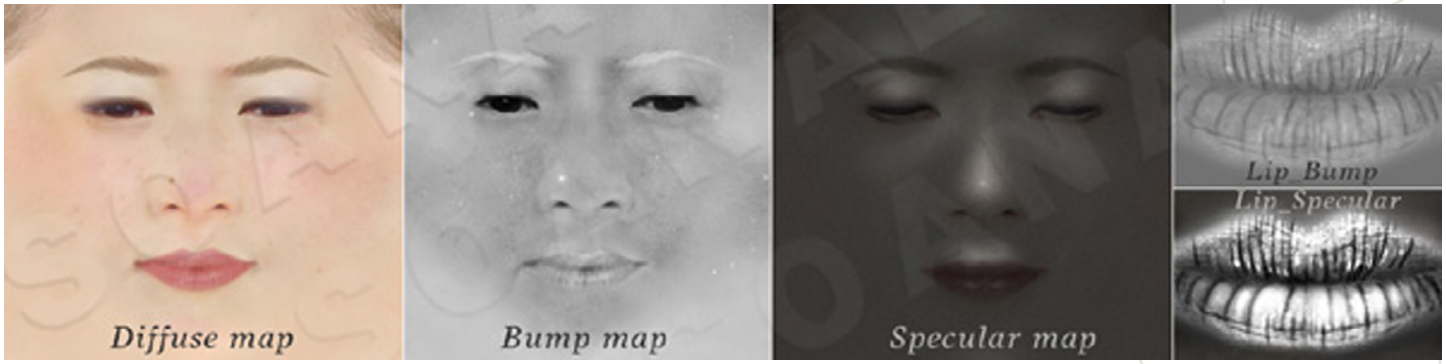


image 4

Materials

Personally, I prefer to execute modeling and texturing simultaneously. I find that texturing can change the subtle complexion of the face, therefore I like working on the modeling process after applying basic textures and creating facial structures. This allows me to maintain the basic facial images that I originally intended. Moreover, this minimizes the modeling data quantity as facial features, such as moles, pimples and fine wrinkles, can be expressed with texturing. Also, you can save time modeling by texturing simultaneously. The next step is to create the textures of the skin. The impression of texture is just as important as the skin colour.

Diffuse. Applies tone of colour into modeling.
Bump. Gives emphasis to pimples, pores, wrinkles, moles, etc.
Specular. Provides moist texture of the skin. Too much will make the skin too shiny, whereas too little will make the skin too dry.
Lip. Shows more wrinkles and glossy spots. In order to ease the control, I created separate mapping to be applied. (image 4)

Eyes are composed of two layers of hemisphere. The inner eye ball makes the pupil look 3-dimensional and serves a critical role to determine the ideal eye color. The outer layer, such as the cornea, serves a role to reflect the images. Because I selected V-ray as my renderer, I applied VrayHDRI on the environment map.

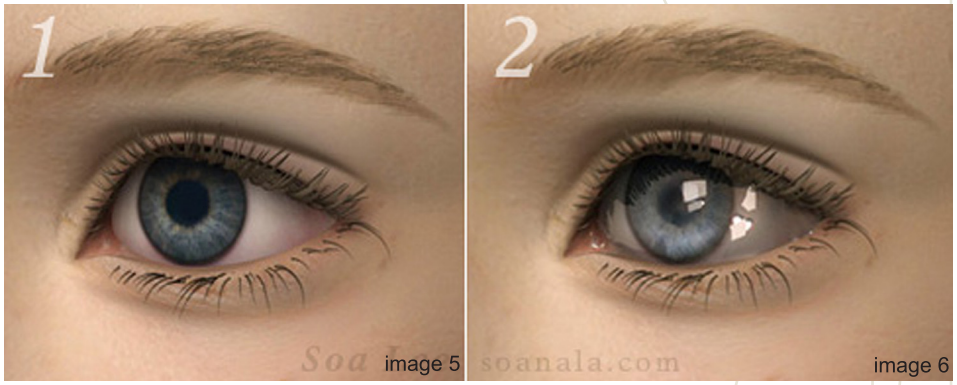


image 5 image 6

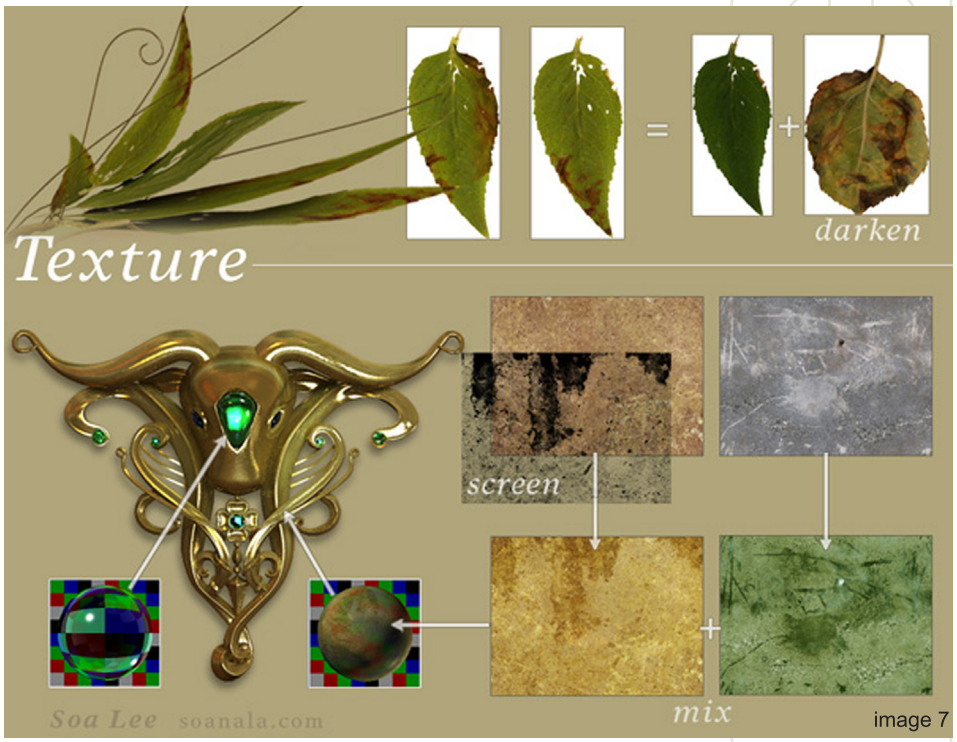
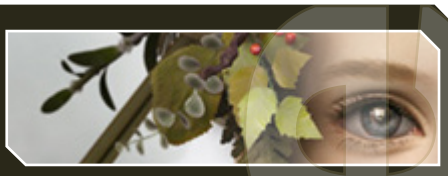


image 7

1. Before HDRI is applied (image 5)

2. After HDRI is applied. Reflective features enable eyes to twinkle better (image 6).

Textures on ornaments were created using 3DTotal Textures. Its organised genre allows an easy scan of desired texture and the quality is considered to be great as well. I have utilised this program to mix and match the textures to create the ideal texture that I was looking for (image 7).



Light

Here is the final light set up for the image and the next step is to render (image 8)

Final

At last, I have come up with the final rendering by completing all the steps of production. Even though the final renderings were similar to the tentative sketches, I found myself a little discontent with the final product. I believe that having too many ornaments served as a distraction and this has contributed to the rather disappointing results. In particular, I found the ear flaps did not serve any purpose and so I decided to eliminate them (image 9).

You can see in image 10, are rendered with wireframe and monotone.

Making of by:
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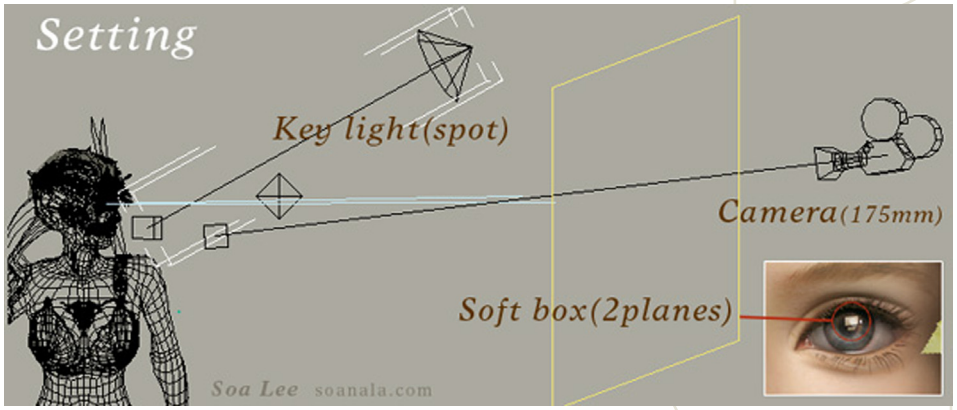


image 8

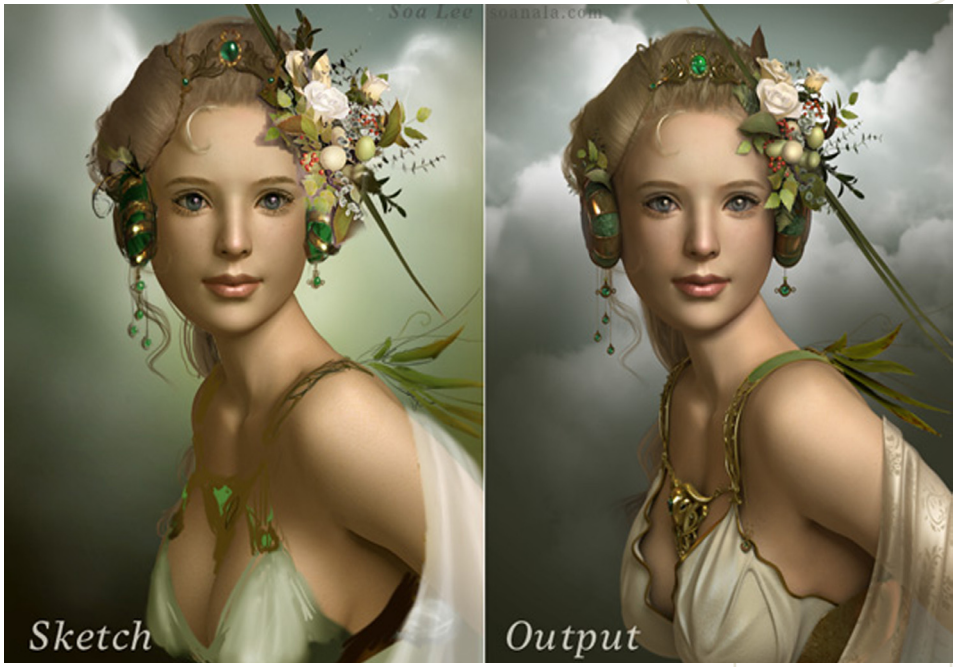


image 9

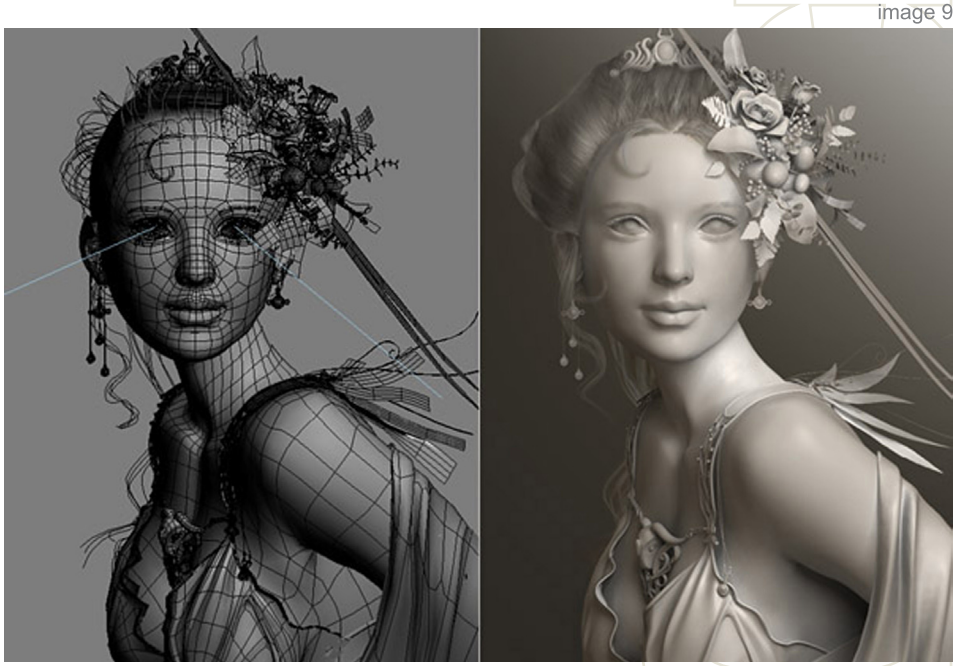
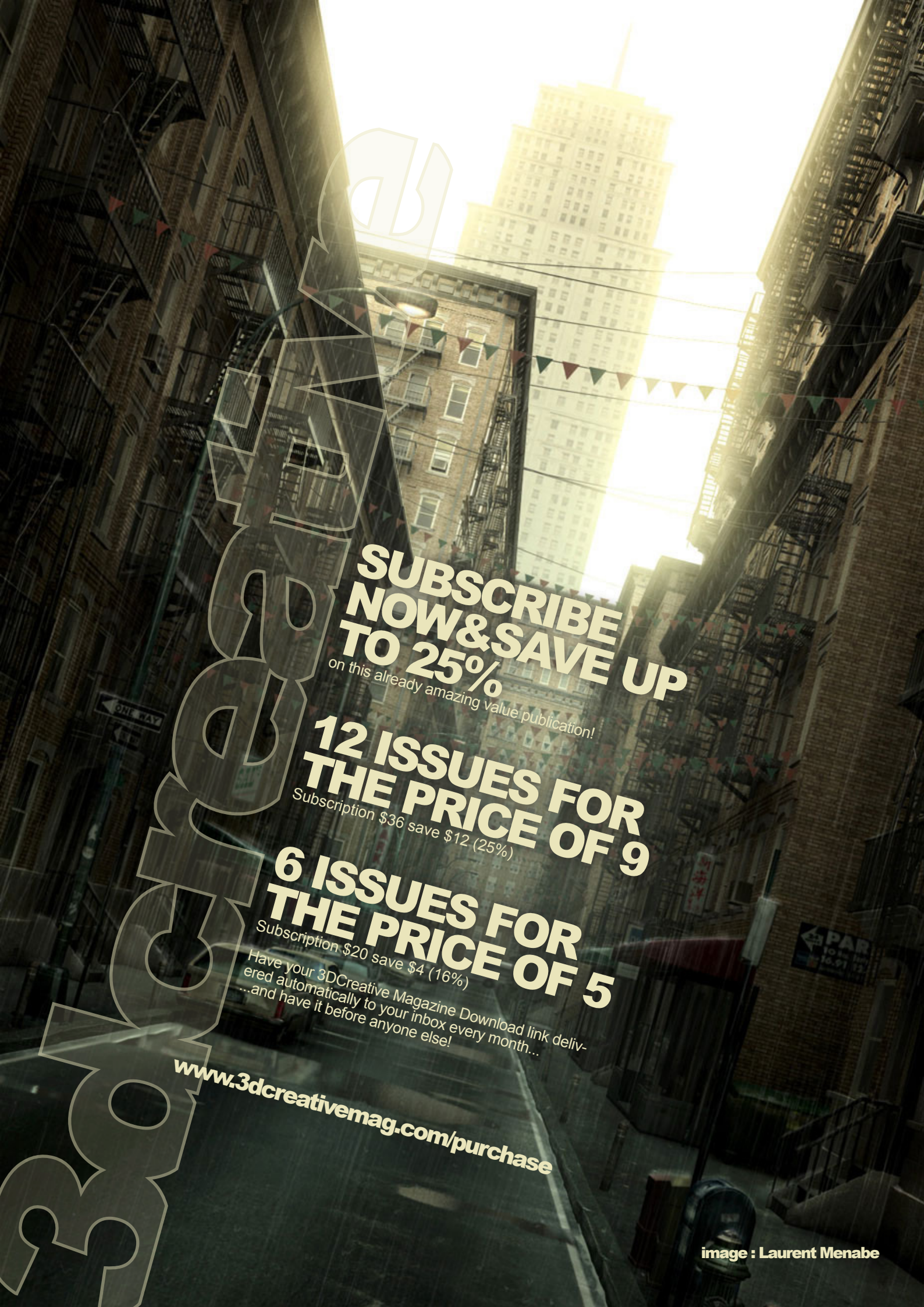
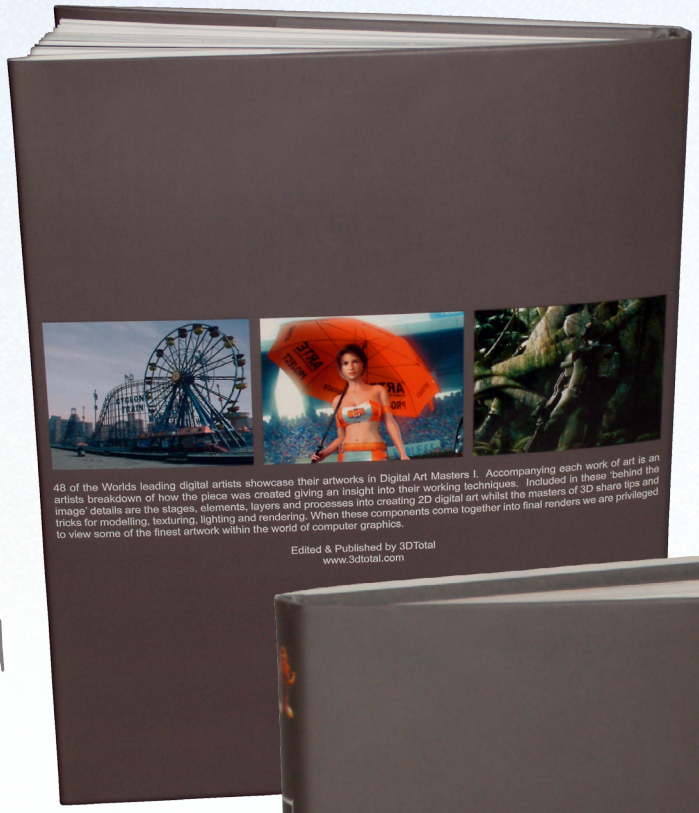


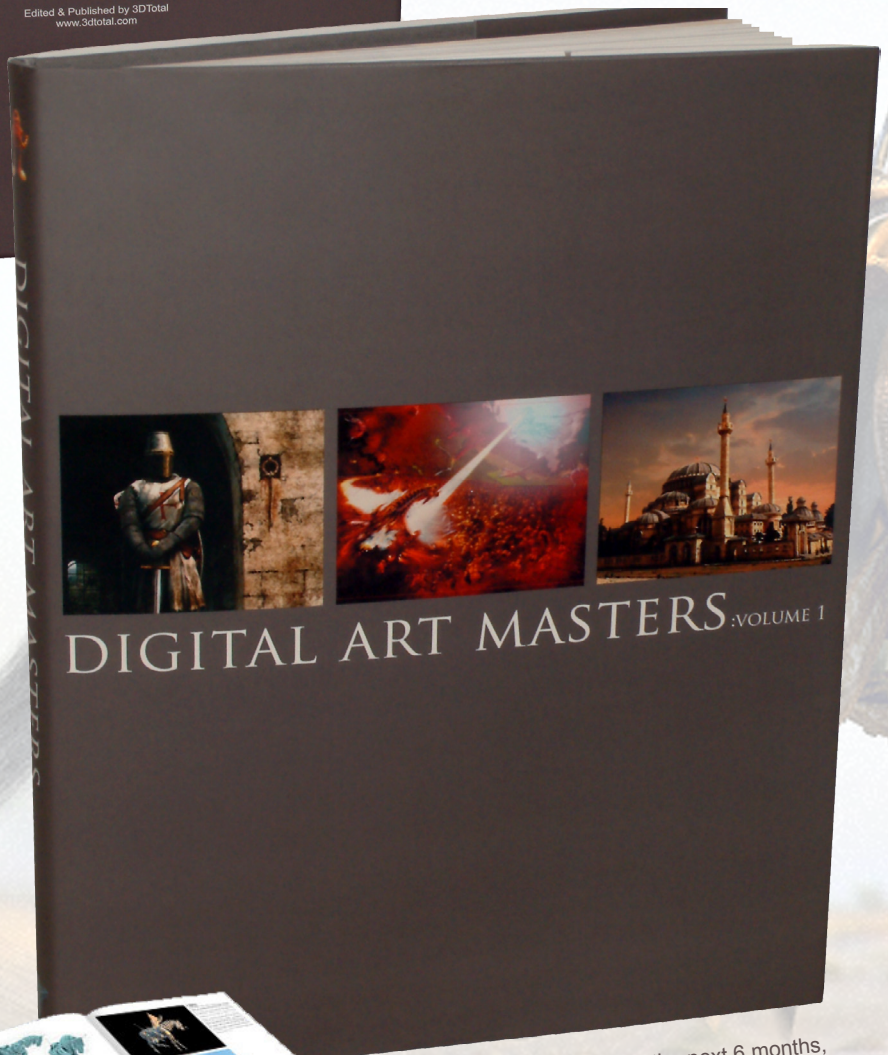
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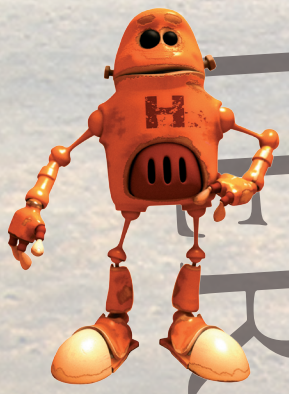

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DIGITAL ART MASTERS









Starting this month and for the next 6 months, we have exclusive chapters from 3DTotal.com's new book 'Digital Art Masters'. The book is more than just an artwork book as not only does it feature full colour, full page images, each artist has described the creation process in their own words, and exclusively for this book. This month we feature:

'Arabian Warrior Horse' by Khalid Al-Muharraqi





Arabian Warrior Horse

by Khalid Abdulla Al-Muharraqi

Concept

The most important part of any project is to come up with the right idea. The artist should spend most of his time developing the right direction to guide his production and he should always have a plan before starting any work, otherwise he might not be able to complete it or it might take longer than needed. My main idea here was related to peace. With all the war and destruction that's happening, I have symbolized the warrior horse as the war tool that was used to ride and destroy. However this hard shell has the need for a softer and gentler thing in its life. It meets an element of nature that moves in a soft and delicate way. It drives it away from the chaos of the war; for a second it forgets it's purpose (1).

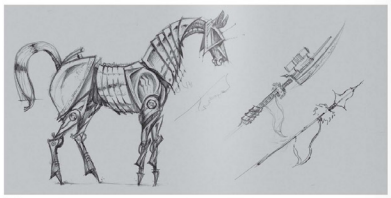


fig 1

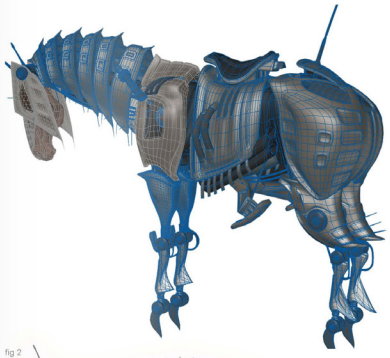


fig 2

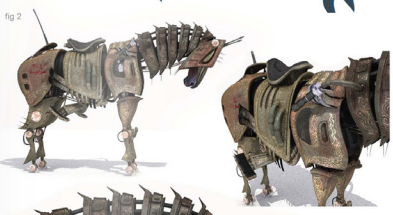




fig 3

I started by getting the sketches to look the way I like. After you know what you want, it's time to look for reference photos. You shouldn't be shy to go through references, because that is the best way to get ideas, and modify them to look original. I was looking for two main things.

Modelling

One of the main problems that you will face with modelling a robot is, where to start? I prefer to start with the head, then work my way down. After a lot of practice I can say that the sub-patch modelling is one of the most enjoyable and easy to control modelling tools that I have ever used in the 3D world. You can almost do anything if you understand how it works. Of course you always have to centralise your objects in the centre of the world in the modeller to be able to use the symmetry tool at the bottom. A lot of the pieces in a robot are created from many other pieces that fit together to be one, like the hood of a car. I think the best way to do that is to build the overall mass as one, then add the segments that are needed to the area that you want to cut out. Once the points are in place, cut out the area and then paste it onto another layer (2).

Texturing

Once modelling is complete, it is the time to start applying some shaders. It's always a good idea to name your object, or even different pieces of your object in a convenient way so when you look for it, it would not be terribly hard to find. For example glass for glass or metal for metal. To me this is one of the most fun parts of the project. I love using Photoshop and I love using Lightwave. Maxon engineers and developers have created the best combination, and they also came up with Body Paint 3D. I was amazed at what this package can do and at once I was not afraid of making my own UVs. It is so organised and so interactive with Lightwave, I almost felt they are a part of each other (3). UV-design is as creative as modelling is; it is an art form that you will have to master. Some models might take hours and hours to make the right UVs, so you will have to do a lot of testing. With the neck section I wanted my texture paint to project itself on both sides. Therefore I have flattened out both sides of the polygons directly on top of each other, so now whenever I paint on one side, it reflects exactly onto the other side. Cool! Thus if there are more of the areas that you want to maintain the same look and if the geometry looks the same, this is a quick and accurate concept to follow. Great to use for cars, planes, animals etc.

These Shots of the book pages are full resolution and can be read by zooming in.

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After I have set up my UVs, I can now begin painting and in the following example we see I am painting my bump texture. In Body Paint you can see bump, specular, reflection and colour, but I wanted to see the black and white contrast for the bump maps directly on my object. You could do it the other way, it's just a matter of preference. After I have painted all the locations, as easily as I got into Body Paint, at the click of the button, the plugin from Maxon or the bridge, is still on stand by to transfer back all the updates that you have done with the UVs and automatically saves your images. Beautiful! I like to spend a lot of time here and I like to use all that I can and all that is necessary. One of the plugins that I suggest will make life better is FPrime from Worley Labs (4). You can see great feed back from your texturing. Starting with the bump map, I created scribbles that resemble scratches to start with and then I apply the UVs for bumps from Body Paint, after which I add procedural texture for clumping. When I think that the bump looks okay, I jump to the specularity and I use the procedural again to design the areas which would have specular highlights adding gloss and diffusing some areas. I have 4 levels of colours; 3 are procedurals textures, each having a different pattern and size, and the final one is a gradient. This is the final coat that will change colour with the degree of the angle that you see the surface from; the more it tilts the more the colour will distort. After I have carefully fixed my services on to my object parts, I now have to think about the proper set-up of my object in the Lightwave layout (5).

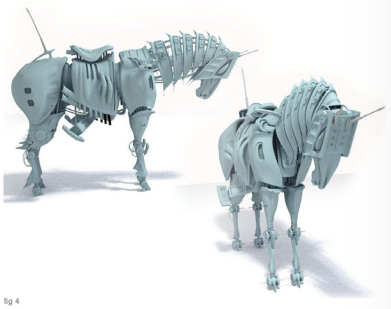


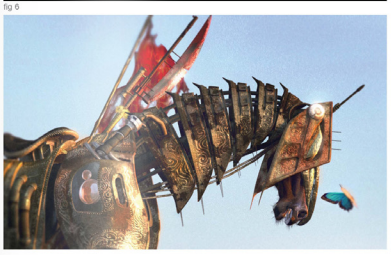
fig 4



fig 5



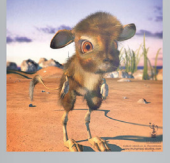
fig 6



Lighting

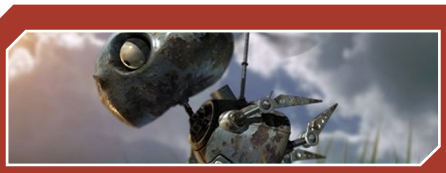
In this scene I have used 5 different lights, two point lights, two spot lights & one area light. Keep in mind that; it's not a good idea to keep more than one shadow from one light source, unless you are in a room with a lot of artificial lights (6). Otherwise your scene will look very strange. You will have to go through a lot of adjustments to get the best results for the lighting. I have added the light in many different locations with different settings to get it where I like it, so take your time here when you are doing your project. Usually artists don't give this area much attention, but I think it's lighting that makes your scene look real or fake.

Portfolio examples









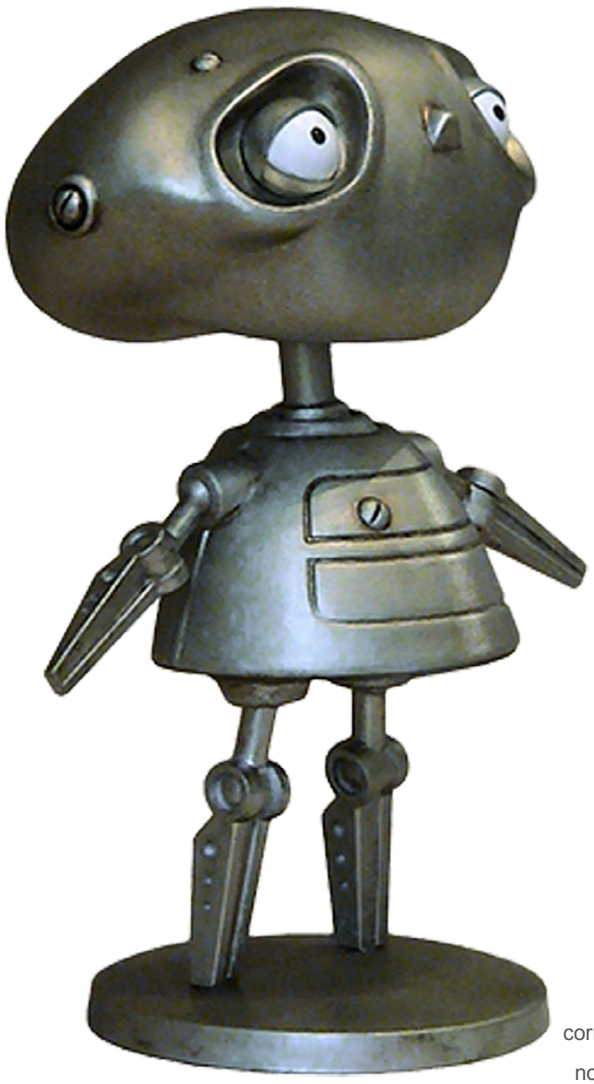
Brian Taylor's "Rustboy" is the lead-character in a 3D animation project done on a low-budget in-home basis. Thanks to the innovative Android8, Rustboy is now a lovabe yet quirky vinyl toy, with 7 points of articulation, including eyes! Standing at 7" tall and limited to 850, 3DCreative have 2 of these toys to give away.



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After a huge response to last months competition, here are the winners, congratulations to all!

KRISTOFFER HÄGELSTAM AND
MIGUEL ANGEL BUÑUALES BERGASA

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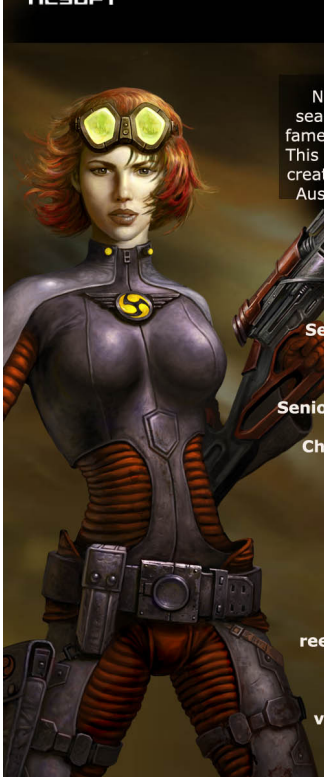
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The Swordmaster

3ds max

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Issue 009 May 06

Modeling the Head

Issue 010 June 06

Modeling the Torso

Issue 011 July 06

Modeling the Arms & Legs

Issue 012 August 06

Modeling the Clothing & Hair

Issue 013 September 06

Modeling the Armour

Issue 014 October 06

Mapping & Unwrapping

Issue 015 November 06

Texturing the Skin & Body

Issue 016 December 06

Texturing the Armour & Clothing

Enjoy ...

Part 3
Modelling the Arms and Legs

Introduction:

Welcome to the third part of an ongoing tutorial which will provide a step by step guide to building a low poly character based upon a model by Seong-Wha Jeong. In this installment we shall start with the torso covered in last month's edition and build upon the mesh to create the arms and legs.

1. If you have followed the previous tutorial on making the torso then open that file and begin by selecting the edges as shown in Fig01. Now hold down the "Shift" key and using the "Move" tool drag this row of edges downwards to make a copy. Remember that we still have the "Symmetry" modifier on top of the stack and so are only working on the left half of the mesh.

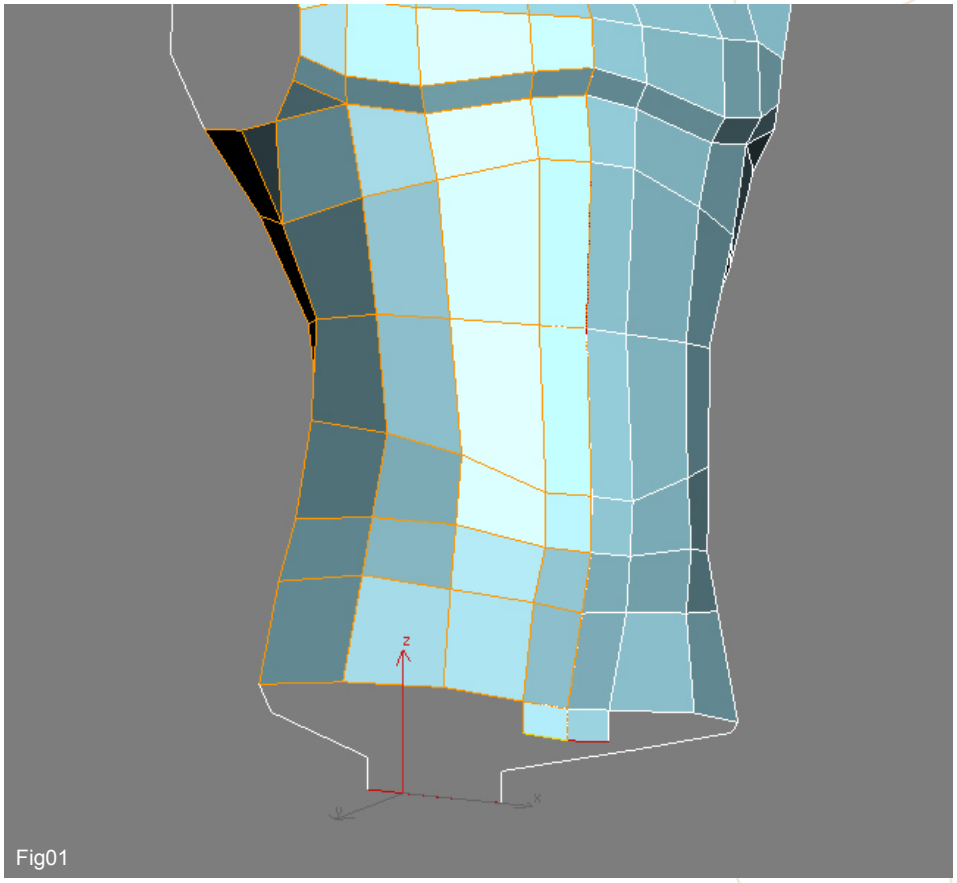
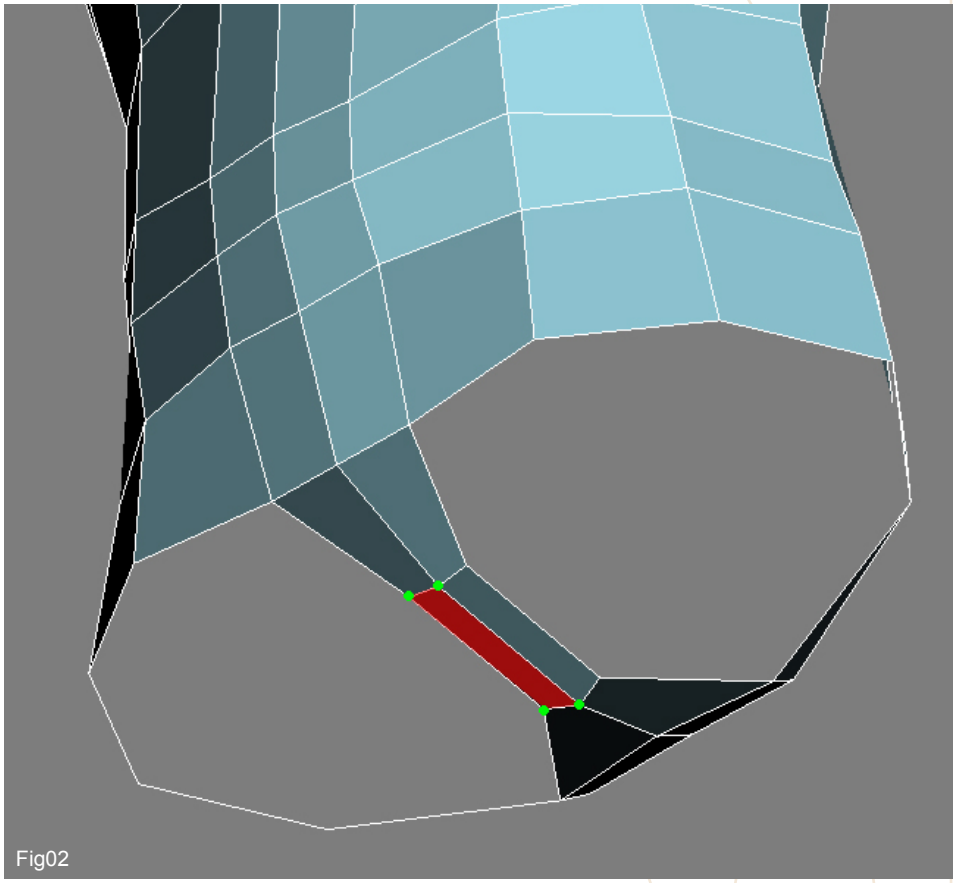
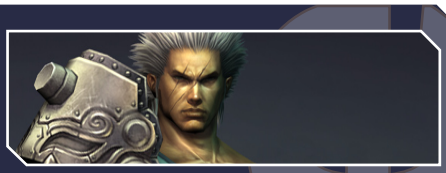


Fig01

2. In the next step move these edges inwards and join them together with another poly in between as indicated by the red poly in Fig02. This will now form two holes from which we will extend the legs. You can do this by either using "Create" in poly mode or simply target weld one edge to the other and then add in a new edge using the "Ring / Connect" tools. Either way is fine.


Fig02



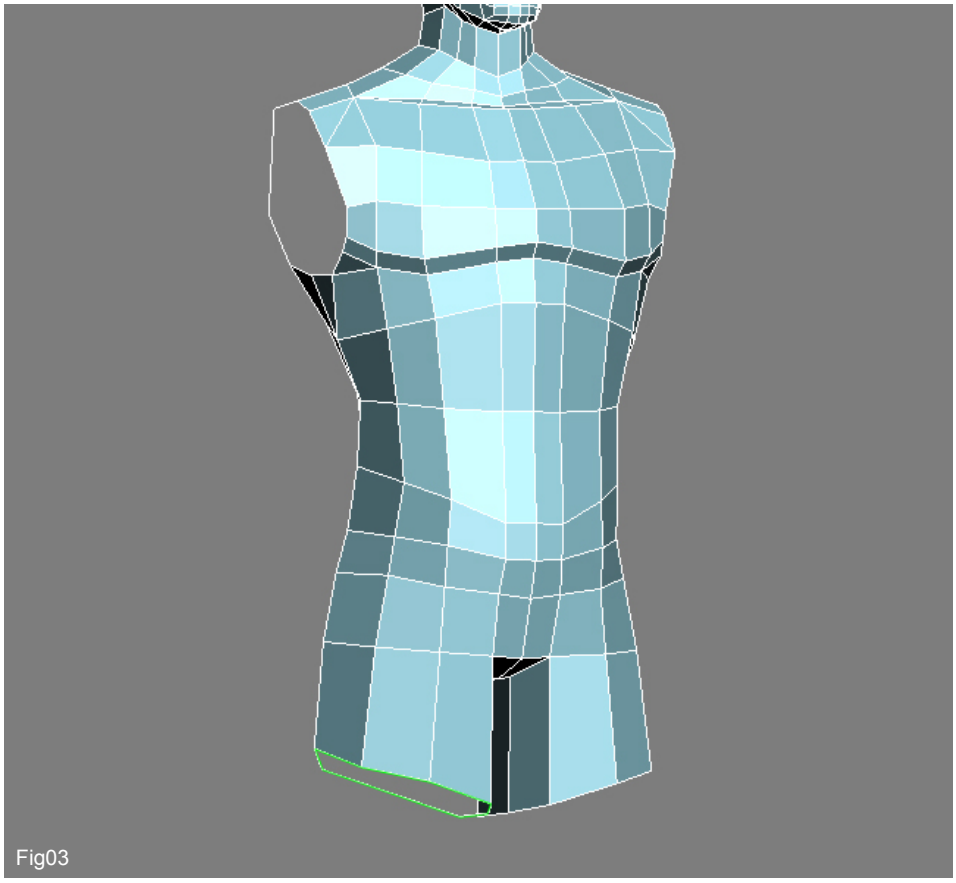


Fig03

3. Make sure you reposition the verts to form a decent shape and then extend the edges downwards using “Shift” and dragging as we have done previously to begin creating the upper thigh (Fig03).

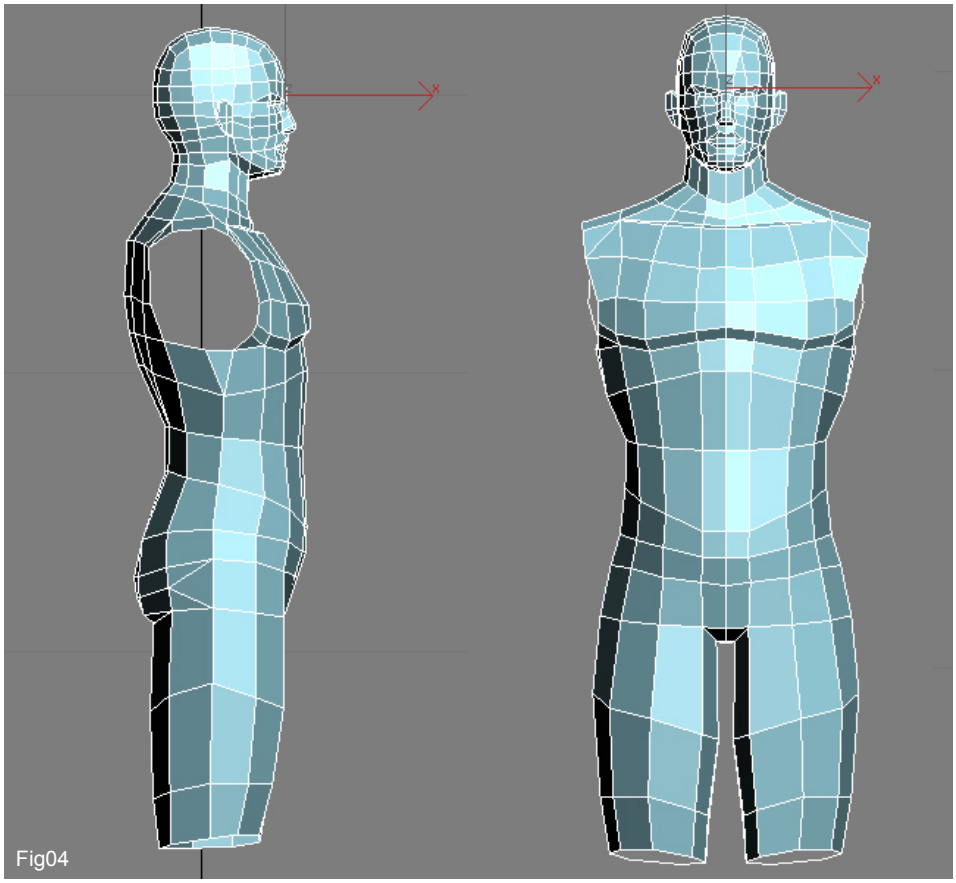
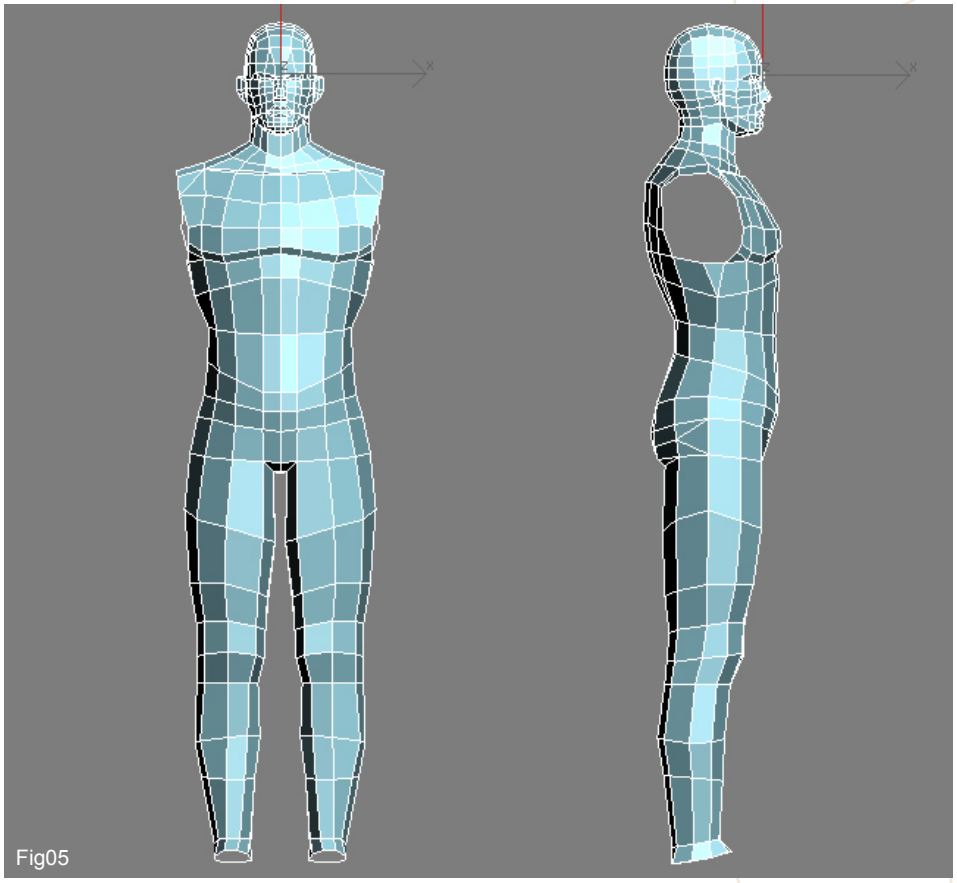


Fig04

4. Using this same technique extend the leg downwards to create the upper part of the leg. Remember to tweak the positions of the verts as you do so in order to form the best shape as we go along. You can see in Fig04 that I have formed two additional edges down to the knee area.

5. The next stage involves applying exactly the same procedure inorder to extend the leg downward to form the knee, calves and ankle. In Fig05 you will notice that this comprised of six new edges all of which were shaped differently in accordance the parts of the leg.


Fig05

6. We have now built the leg and it is time to create the foot. You will notice that the poly's that make up the leg are open ended and need to be capped in order to form the sole of the foot. We do this by either selecting one of the edges in sub-object Border mode and then clicking on "Cap" or simply creating three extra poly's that run across the foot in Poly mode as seen in Fig06.

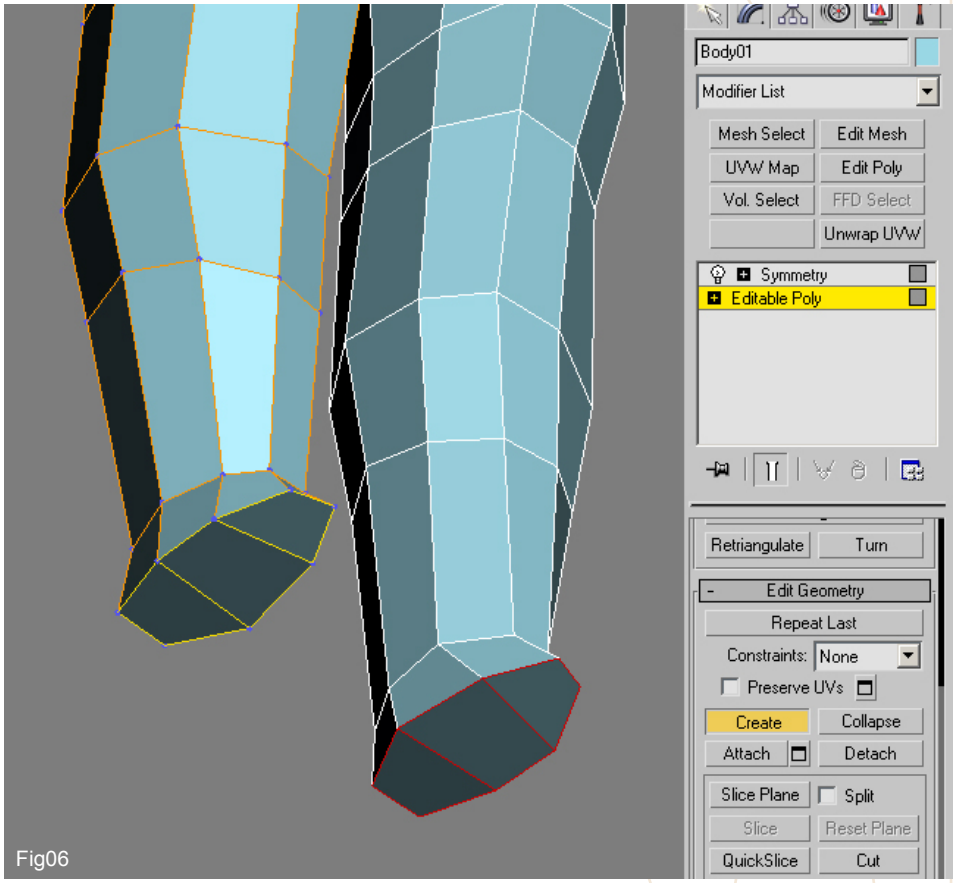
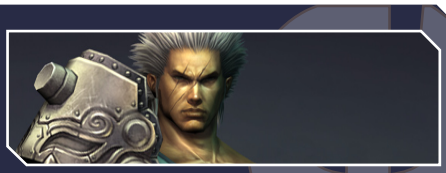


Fig06



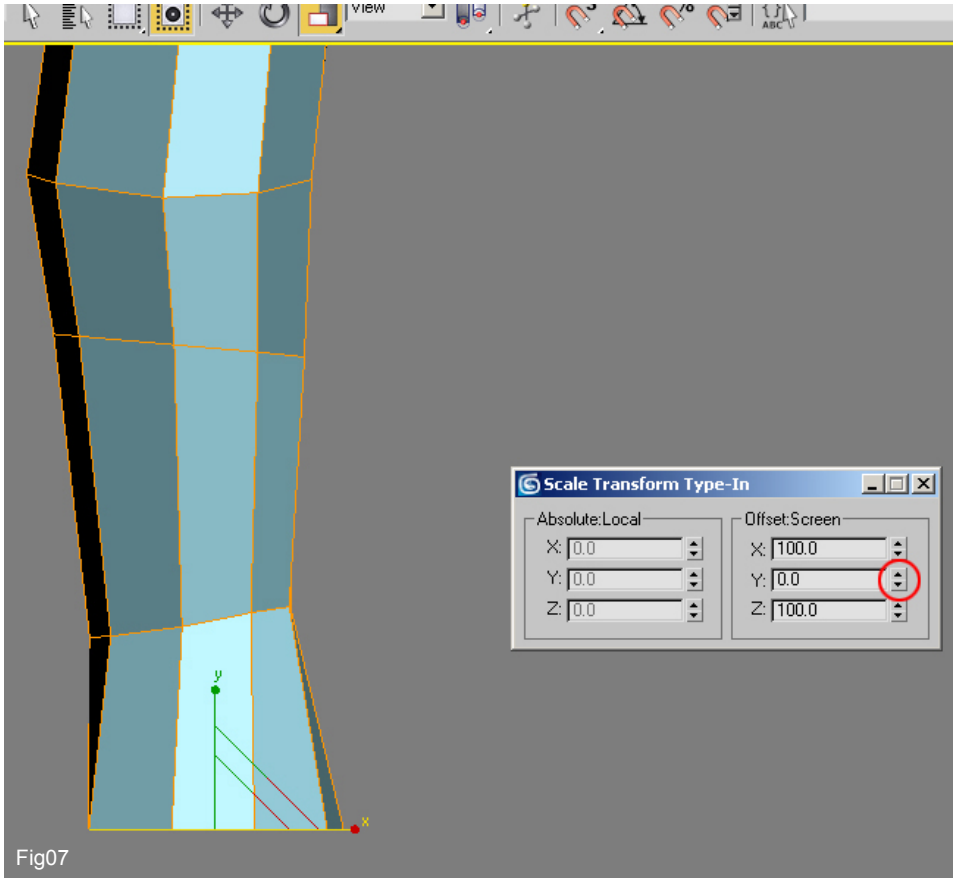


Fig07

7. We now need to level these poly's so in a profile view (left or right) select them and then right click the "Select and Non-uniform Scale" tab on the toolbar. This brings up a dialogue box as shown in Fig07. Right click on the bottom arrow in the Y axis (highlighted in red) and the poly's should all align nicely.

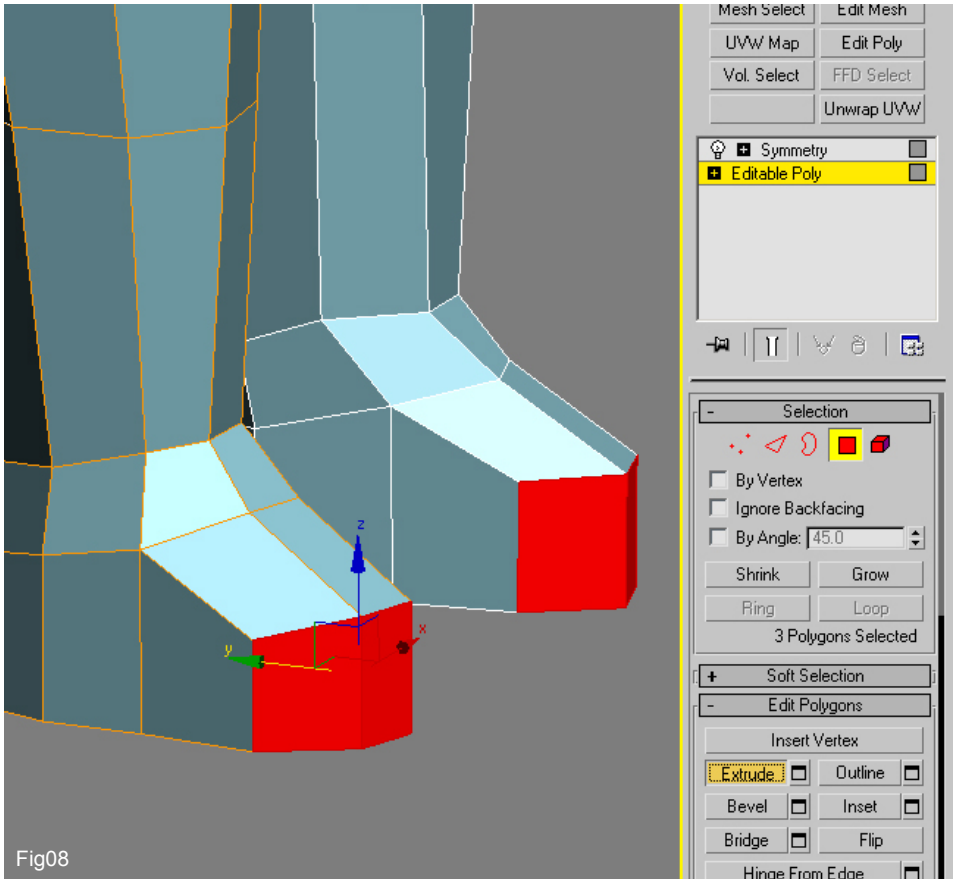


Fig08

8. To start the feet off select the two front poly's and "Extrude" them forward, scaling them down as you do so (Fig08).

9. Make a further extrusion to add the toes and in order to add a little more curvature add a further cut as seen in green in Fig09.

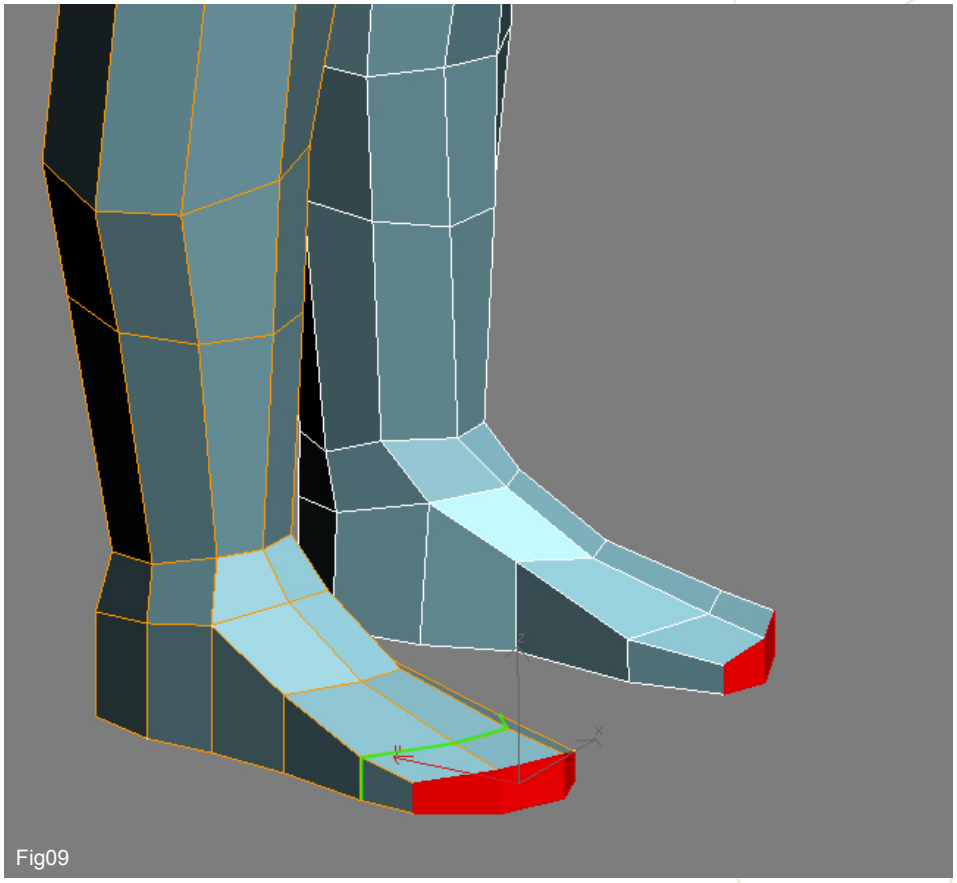


Fig09

10. We now have two complete legs and feet but there is one last thing to do before we move on to the arms. In order to get a better deformation around the knee area we are going to add in two new cuts which will help maintain a more consistent shape at the back of the leg when we bend the knee (assuming off course that we are going to attach a skeleton). You can see in Fig10 that I have made two diagonal cuts and when we attach a skeleton and bend the knee backwards you will notice in the two insets on the right that the lower one is more realistic as a result. The upper diagram shows a kink in the mesh and is due to a cut intersecting the bend (green line on the left leg). For this reason it is best to choose the configuration on the right and add in the two extra cuts.

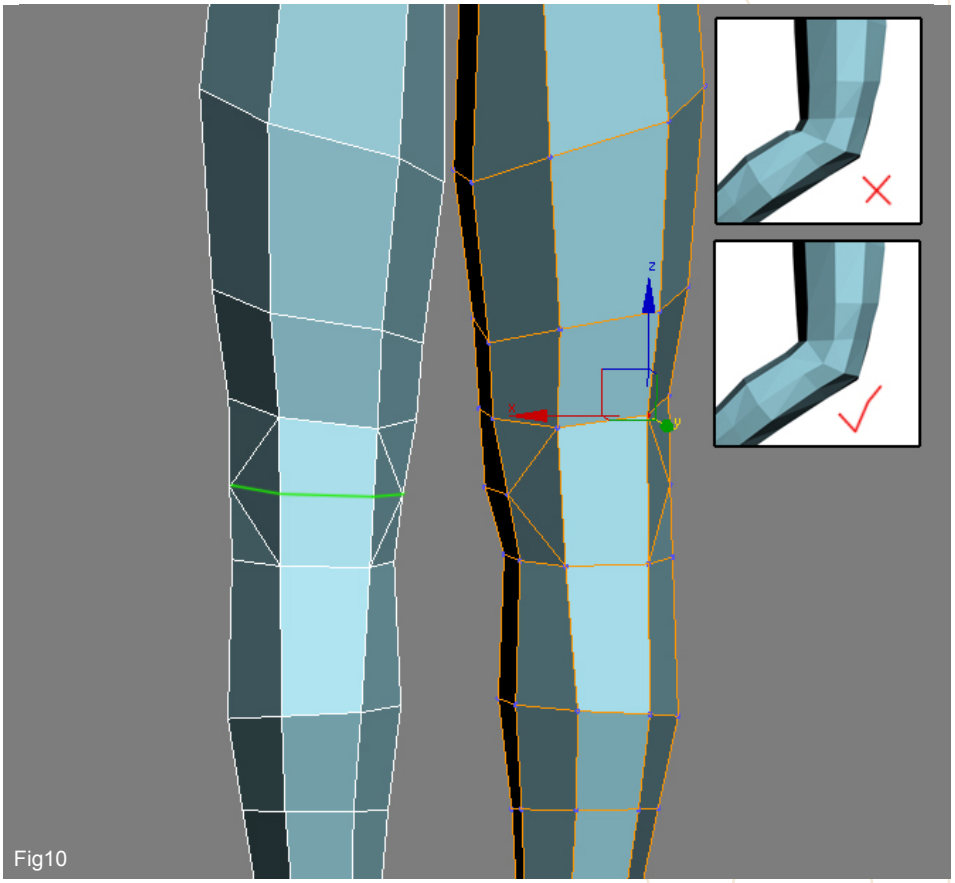
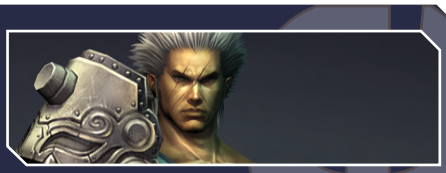


Fig10



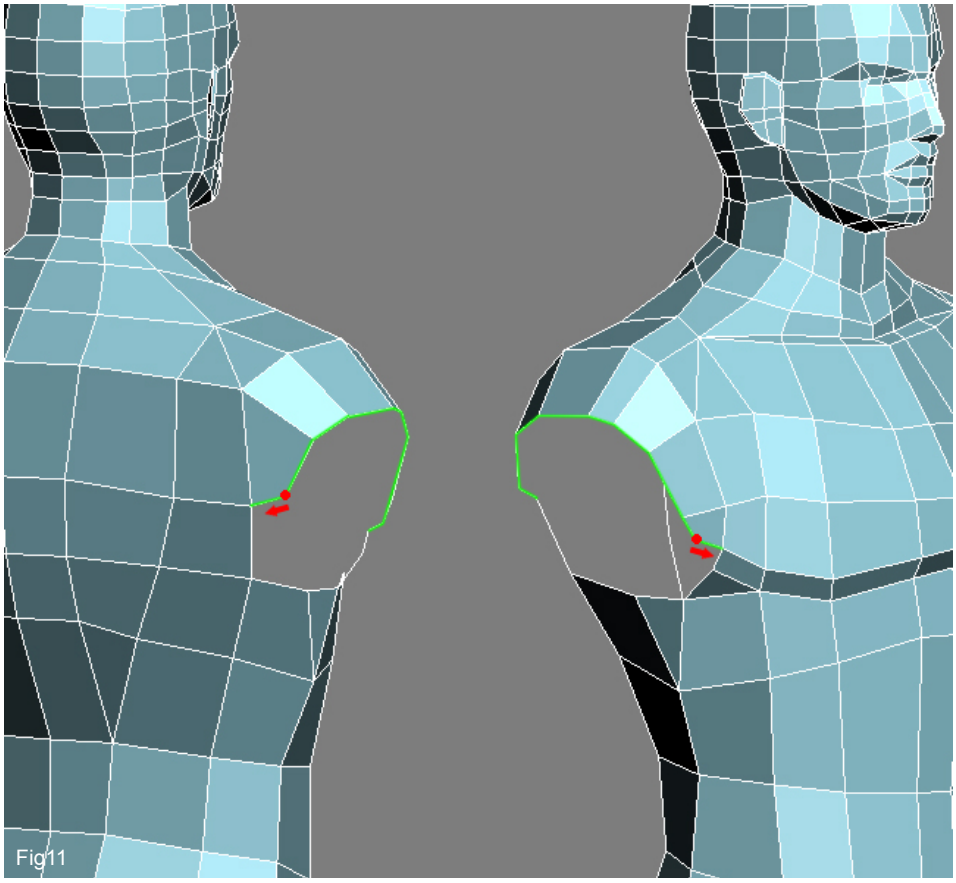


Fig11

11. With the legs finished it is time to extend the arms. Continuing from our torso in the previous tutorial select the top seven edges and extend them to make a new set (green line in Fig11). Now weld the two verts in red to the corners indicated by the arrows.

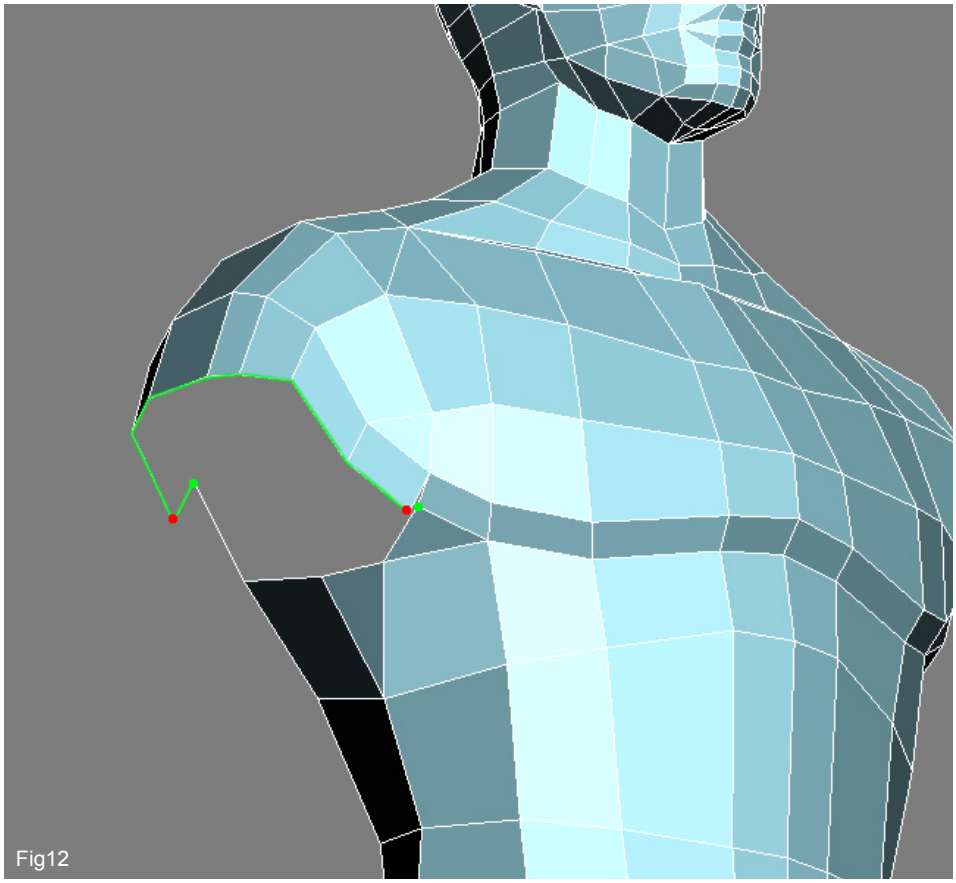


Fig12

12. The next step is to extend these edges out once more and then weld the two outer most verts (highlighted in red in Fig12) to the verts highlighted by the green dots.

13. Now select only six of the edges leaving out the one nearest the chest (marked by the two red dots in Fig13). Weld the marked verts in the direction shown at both the front and back resulting in configuration seen on the right of the picture. Once this is done add a cut across the fron poly indicated by the purple line and then make the two triangles below into a quad.

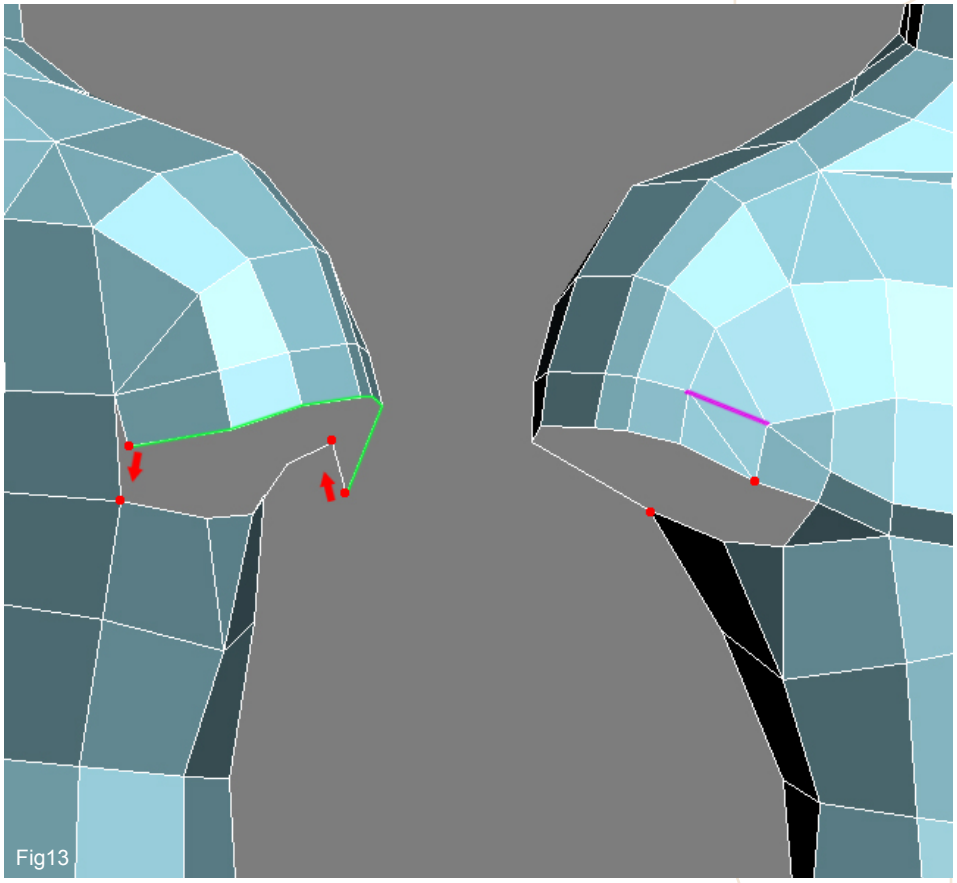


Fig13

14. Remember to reposition the new verts as and when you create them in order to get a good shape. When you are satisfied select the poly furthest back in the new group and add a cut from the corner downward as shown by the red line in Fig14. Then select the ring of open edges and extend downward to form the top of the arm and a new section (green line).

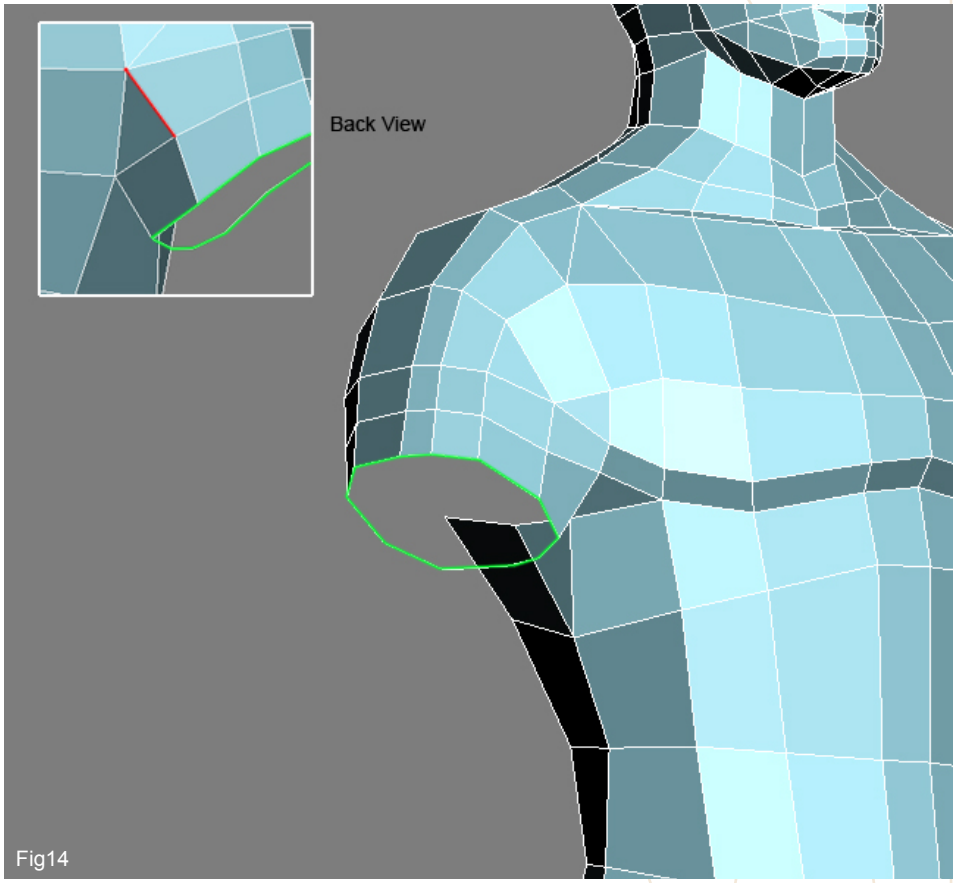
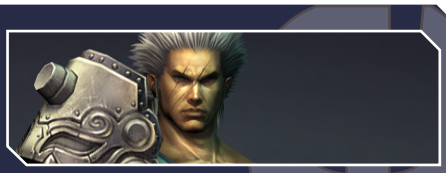


Fig14



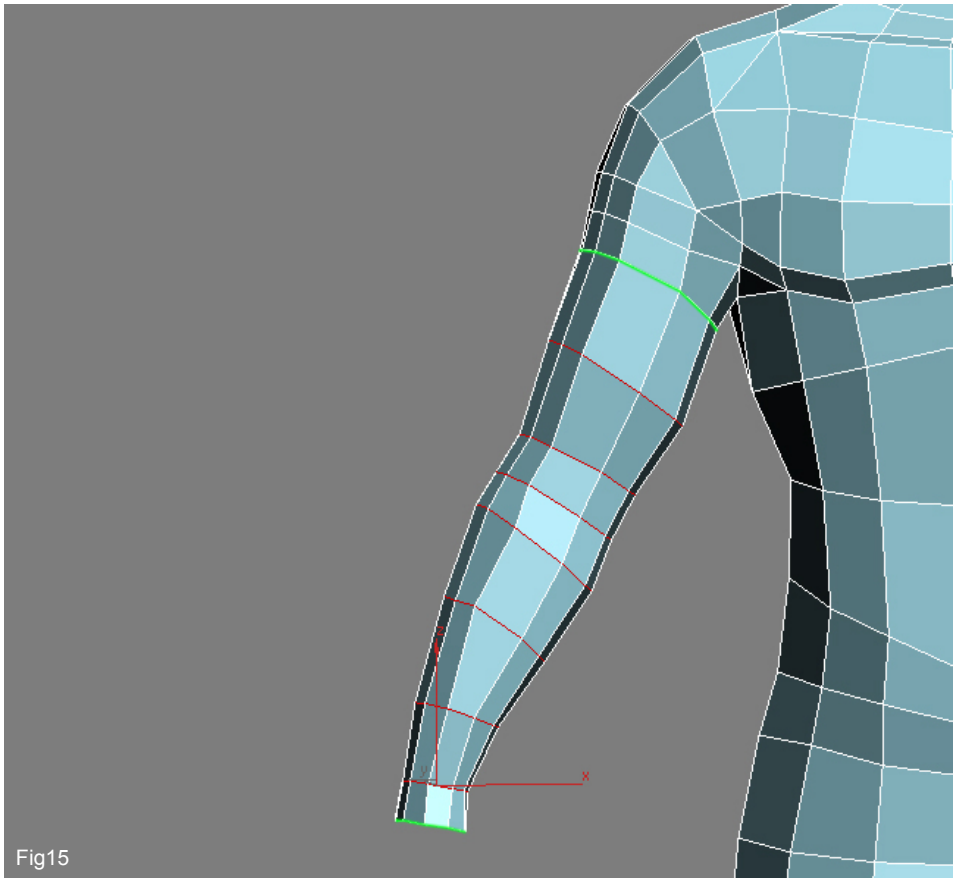


Fig15

15. Now that we have a start to the arm we can continue by shift dragging edge selections and transforming the verts until we get to the wrist as seen in Fig15. In this case I have added a further eight extrusions.

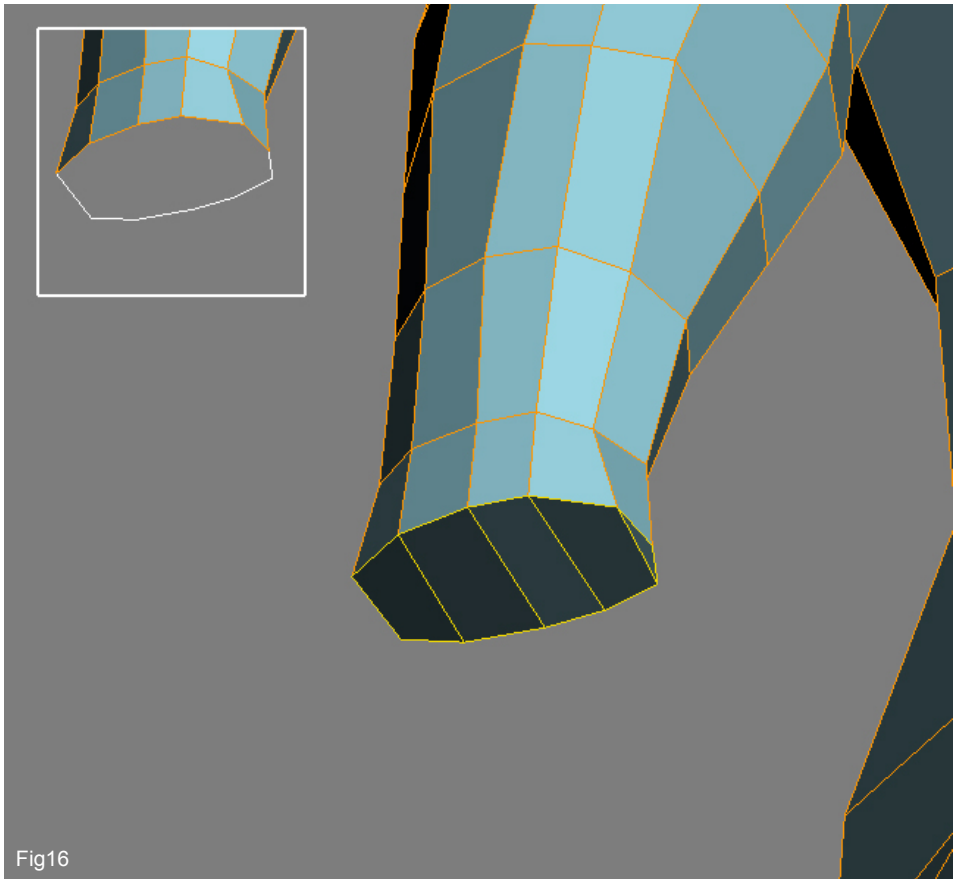


Fig16

16. As we did with the foot we are going to cap the end of the arm with five poly's as shown in Fig16. You will notice a single triangle on the left but do not be concerned about this at the moment.

17. In order to prepare for the thumb extend the two right most verts outward as shown in Fig17.

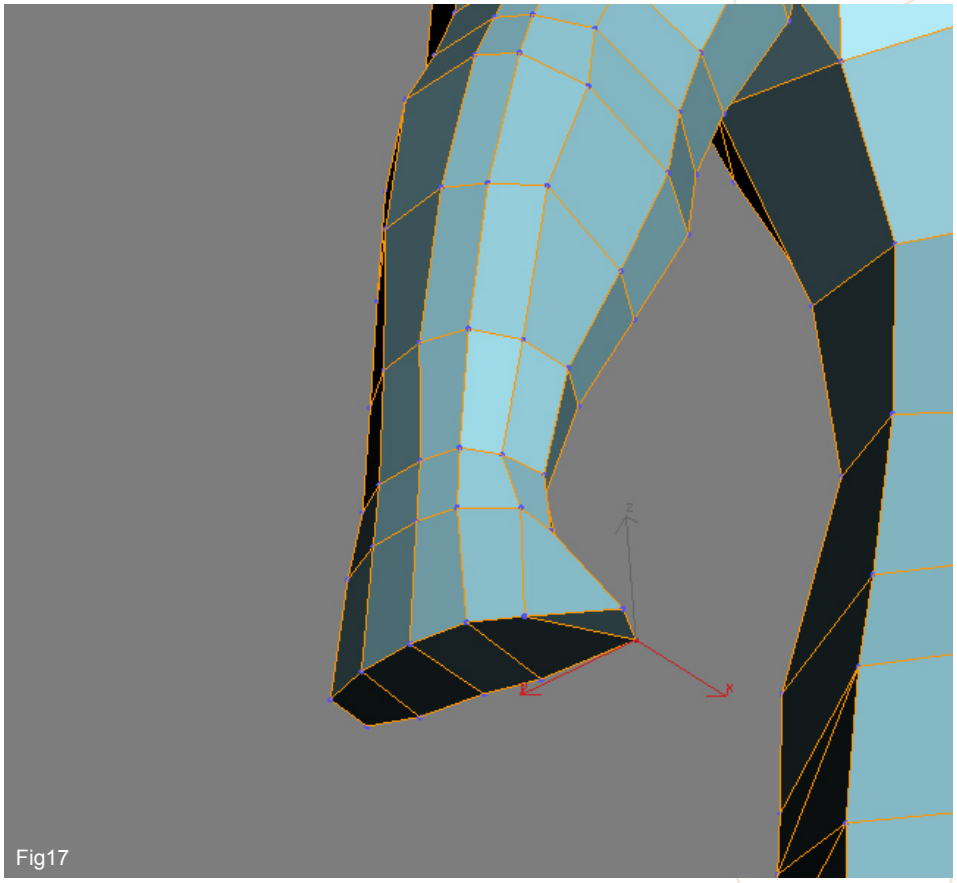


Fig17

18. Next add a cut on the underside (Fig18) in the position numbered 1. This will leave a five sided poly on the palm side of the hand and so to alleviate this continue the cut upwards in the position numbered 2. Now to give the thumb area more shape add a further cut in the position numbered 3. This will add a little more curvature to the thumb when we extend it downwards eventually.

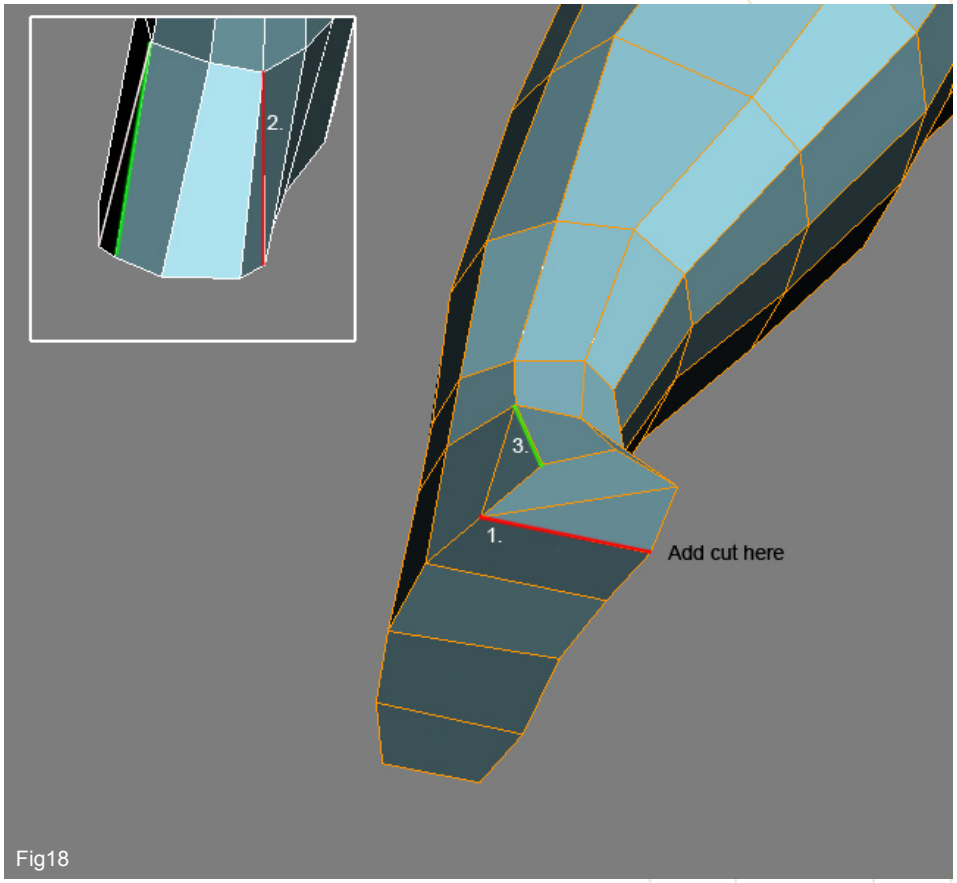
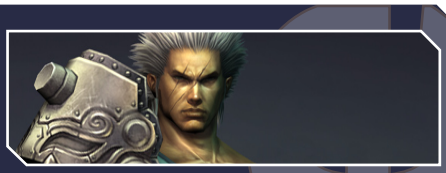


Fig18



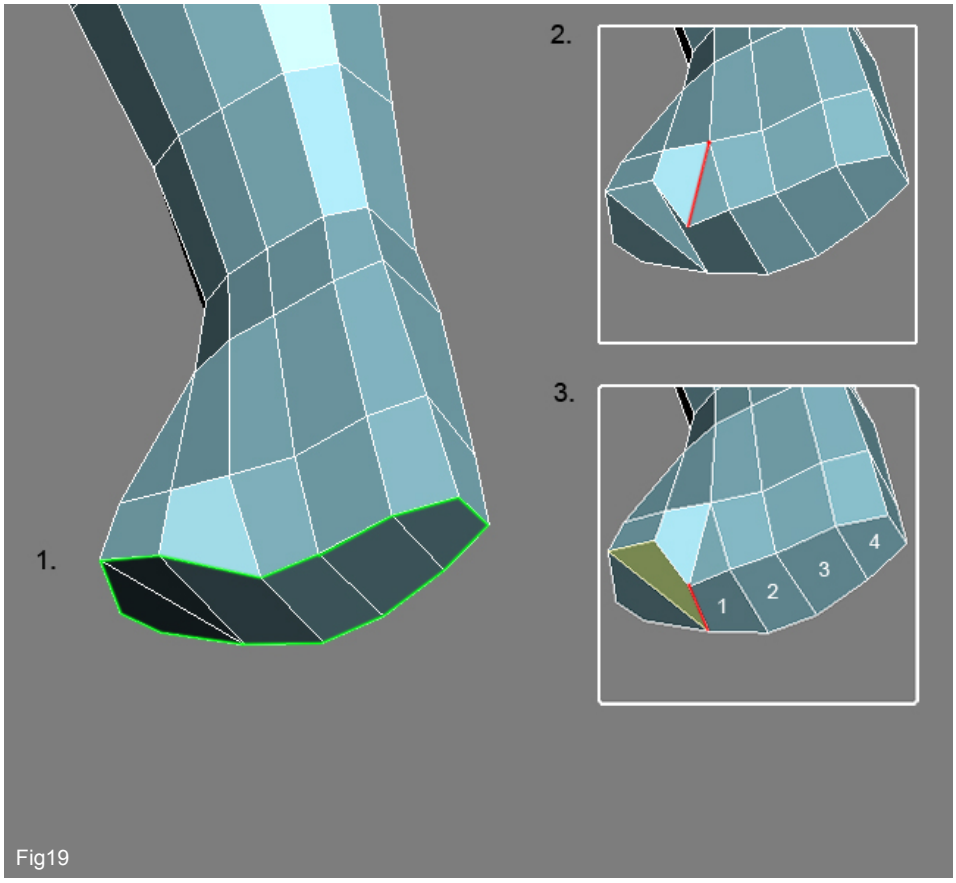


Fig19

19. When we look at Fig19 we can see the underside of the hand on the left. We have four poly's that can be used to extrude the four fingers but the shapes including the thumb area need re-shaping slightly before we do this. First make a cut as indicated by the red line (inset 2) and then move the new vert down slightly. Follow with a cut from this new vert to the outside of the hand (red line on inset 3). Now delete the two triangles next to it and create a quad (shaded in green) which will result in a row of four quads ready to create the fingers and the beginnings of a thumb.

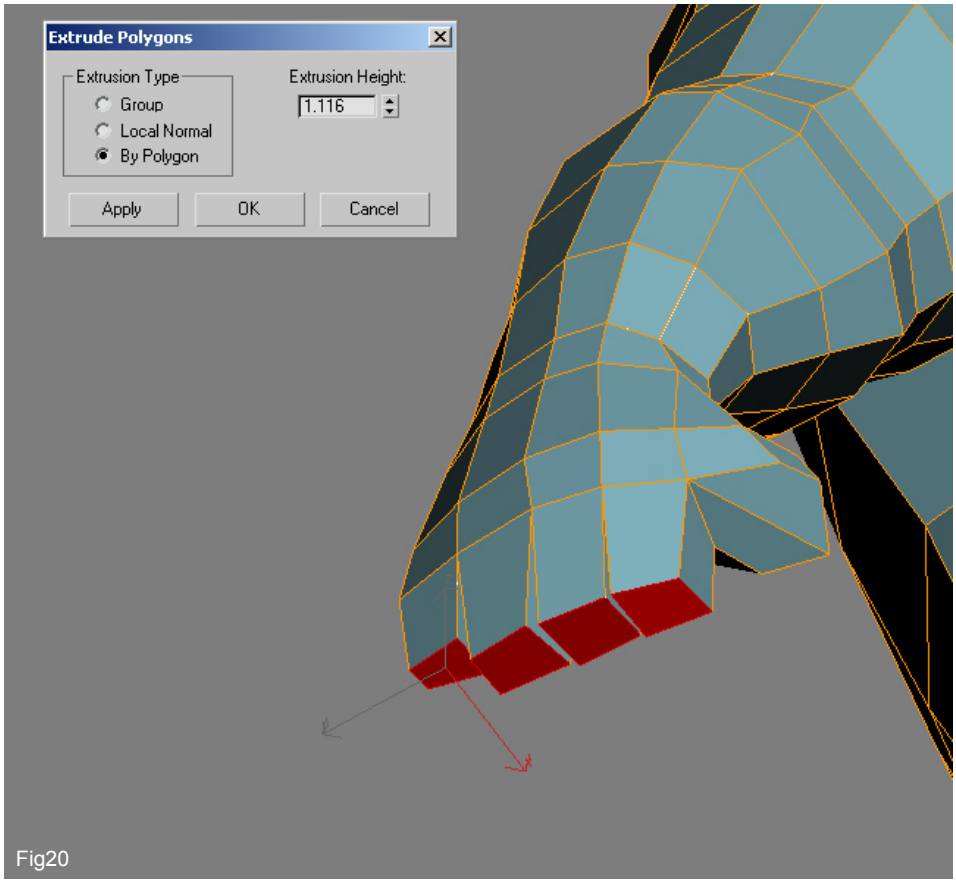
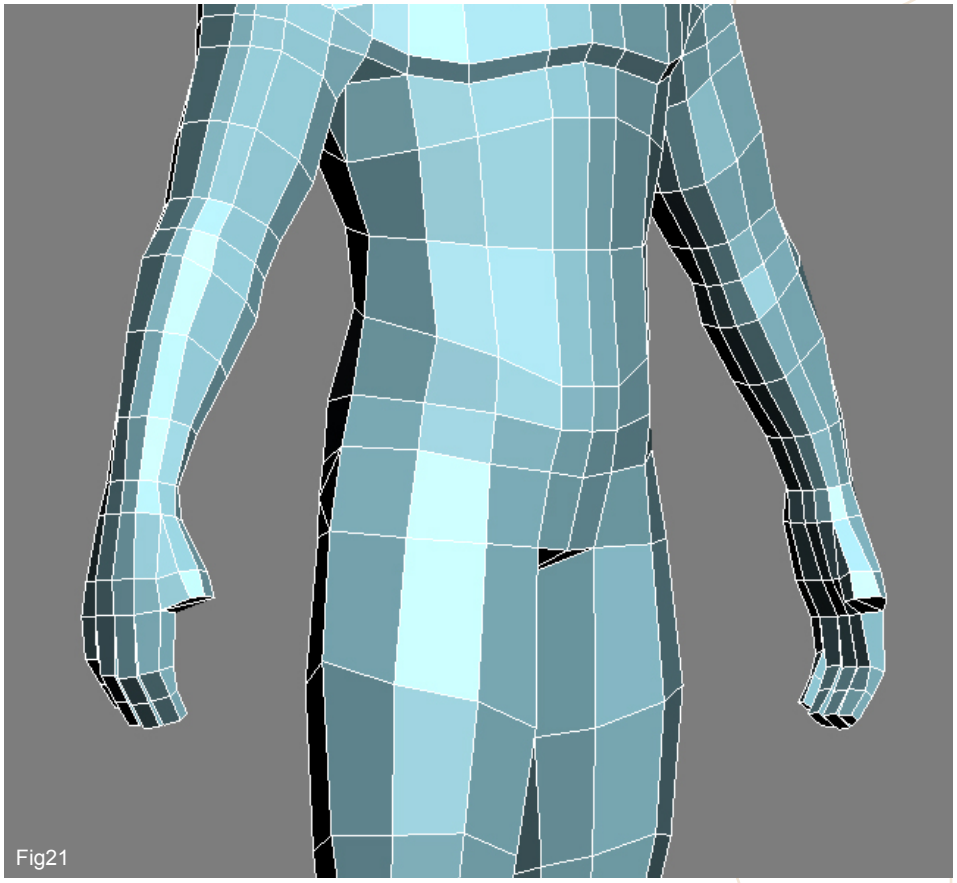


Fig20

20. Select these four poly's and extrude them downwards making sure to select "By Polygon" (Fig20).

21. Rotate these new poly's a little and then do a further two extrusions, scaling them down somewhat to shape the fingers (Fig21).


Fig21

22. The next step is to shape the thumb which will involve the same procedure and so select the lower poly's and extrude downward making sure to select "Group" this time. In order to create a better flow from the palm make sure you re-orientate the hidden edge to correspond with the red line in Fig22. You can do this by selecting the polygon in question and clicking on "Edit Triangulation" and then clicking on "Turn" and selecting the edge. This will cause the edge to flip in a different direction or alternatively you can make a cut as we have done in the past.

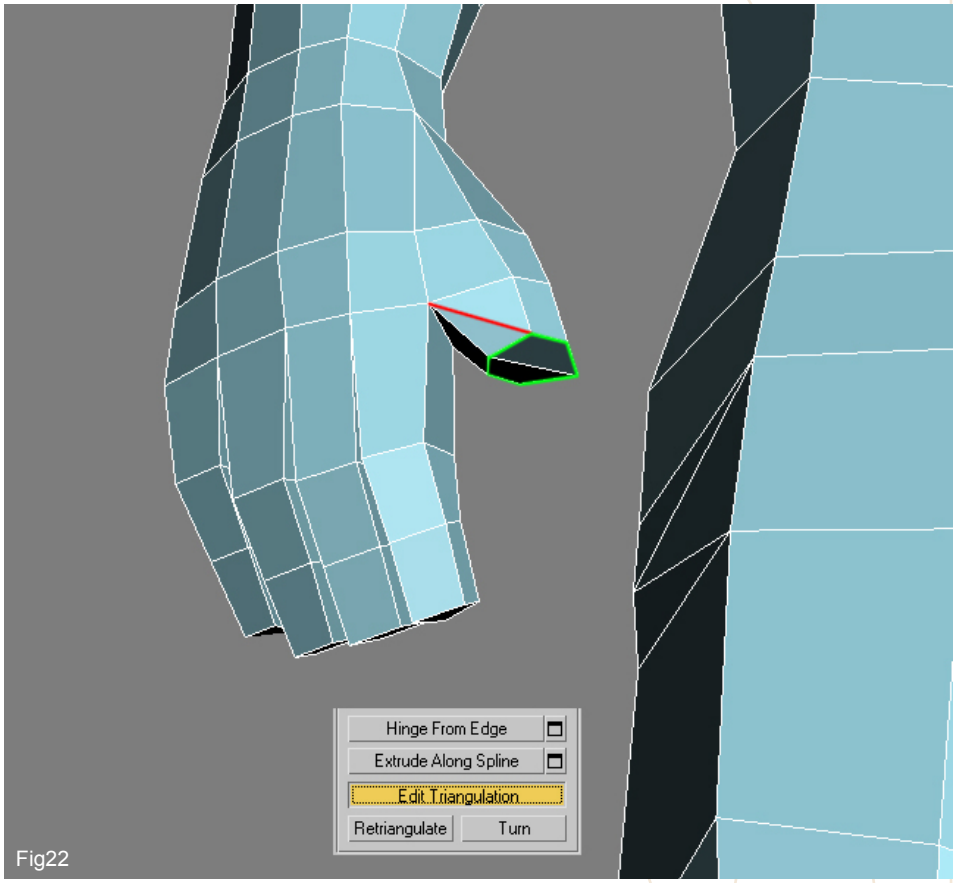
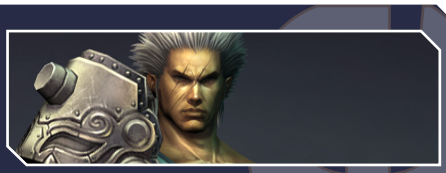


Fig22



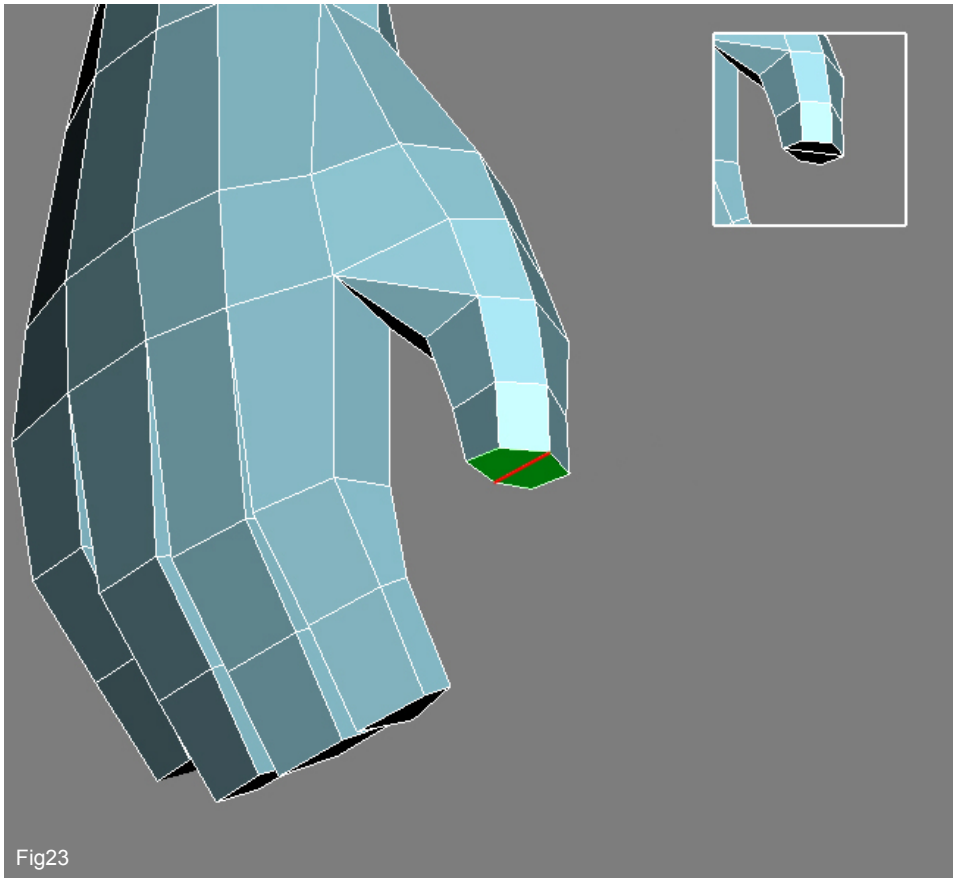


Fig23

23. You can then go on and extend the poly's to build the thumb. In Fig23 you will notice that I have re-orientated the poly's at the end to form a more even split compared to the original seen in the inset. This is not entirely necessary and may even inhibit a better shape when adding the curvature at the thumb tip but we are not adding much detail here so it should be ok.

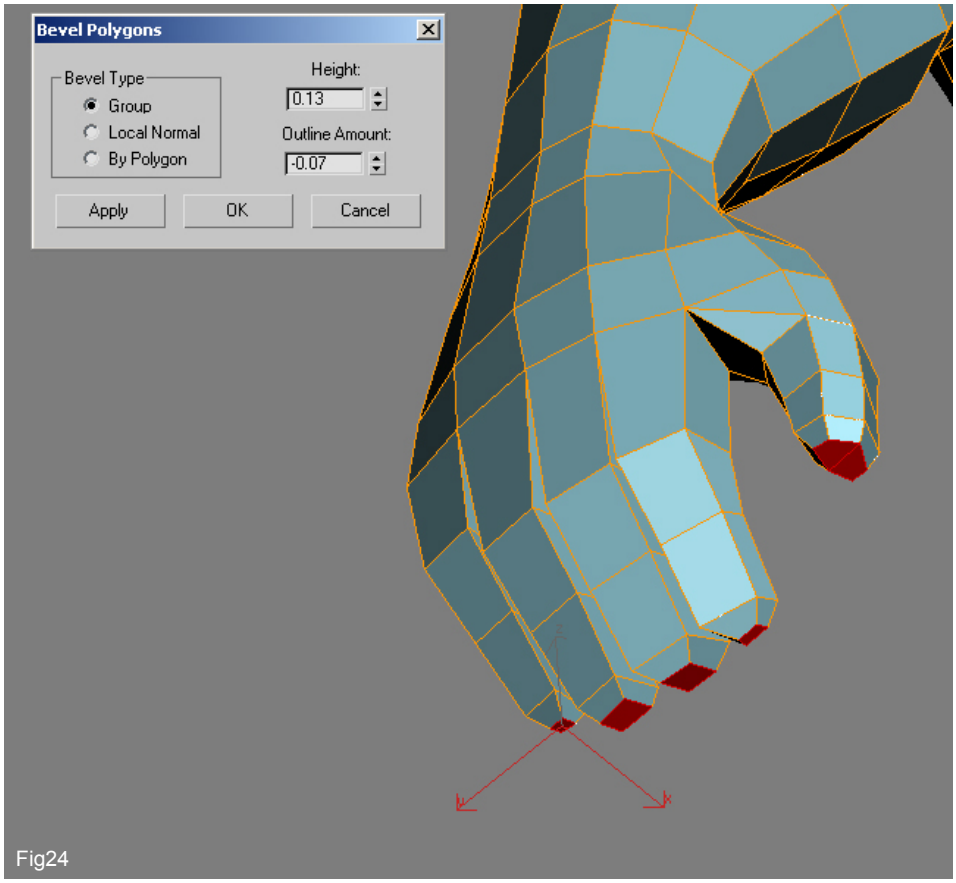
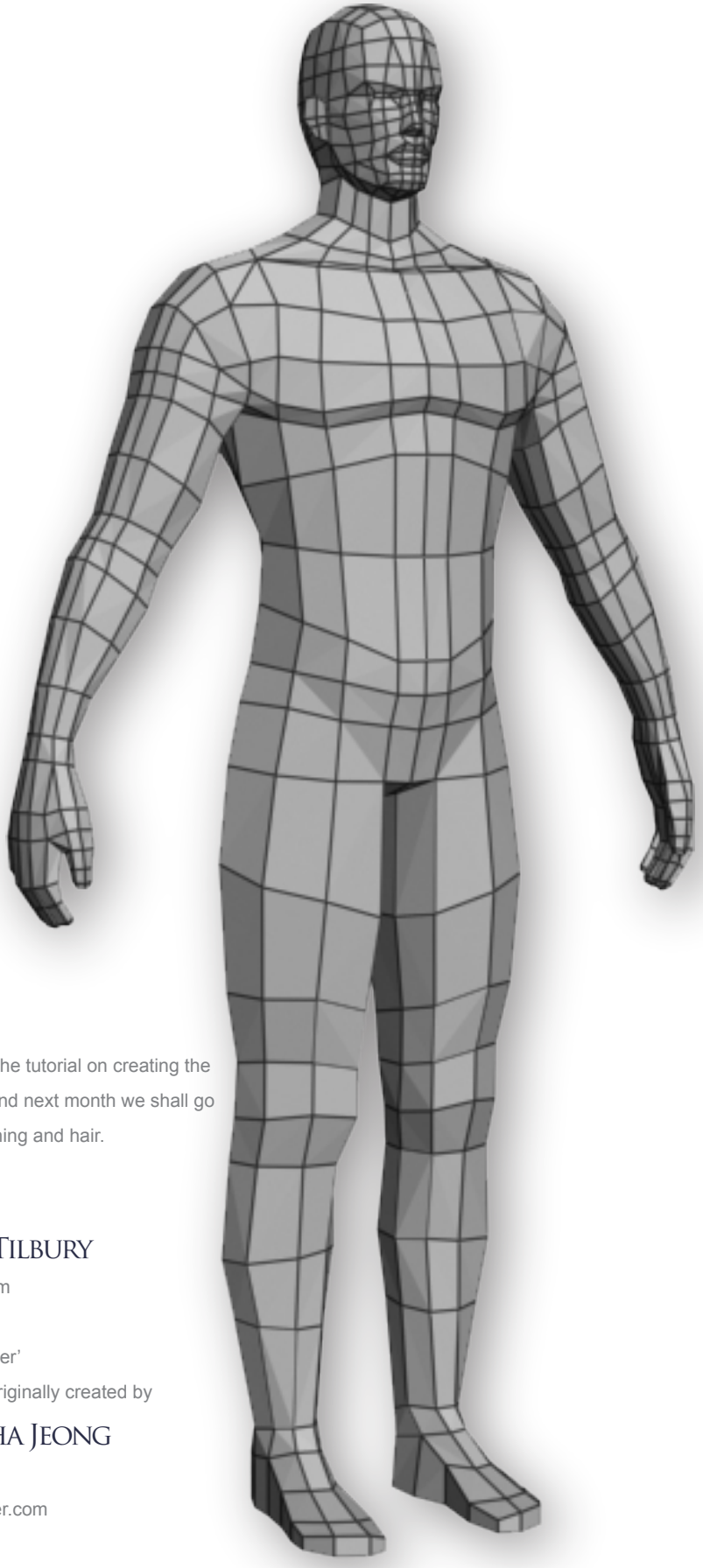
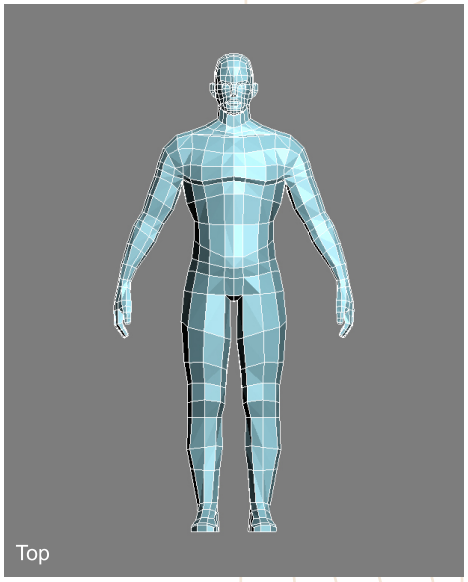
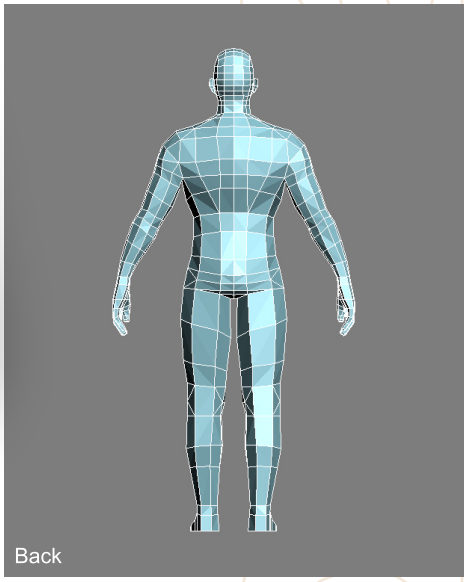


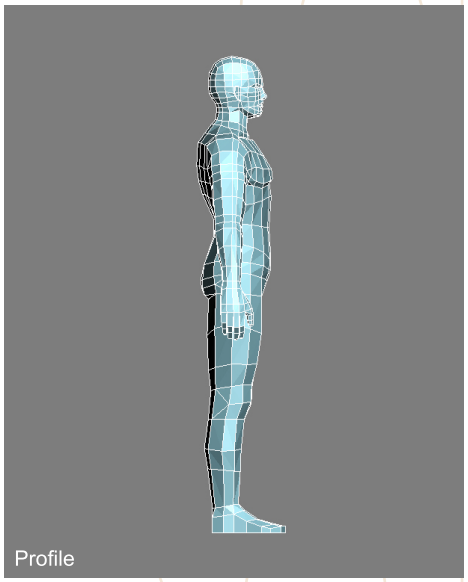
Fig24

19. The final stage is to select the six poly's that make up the tips of the fingers and add a "Bevel" with the amount similar to that shown in Fig24. This essentially wraps up this particular section and we now have a complete figure.









This concludes the tutorial on creating the arms and legs and next month we shall go on and add clothing and hair.

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The Swordmaster

Is our new precise, step by step tutorial for a highly polished, low polygon game character with detailed texturing for real-time rendering. We have had the tutorial created for the 5 major 3d applications, but even if you are not a user of one of them, the principles should be easily followed in nearly all other 3d applications. Over the next 8 months we will outline in detail the process for creating the 'Swordmaster' you see on the left. The schedule for the different parts of the tutorial is as follows:

Issue 009 May 06

Modeling the Head

Issue 010 June 06

Modeling the Torso

Issue 011 July 06

Modeling the Arms & Legs

Issue 012 August 06

Modeling the Clothing & Hair

Issue 013 September 06

Modeling the Armour

Issue 014 October 06

Mapping & Unwrapping

Issue 015 November 06

Texturing the Skin & Body

Issue 016 December 06

Texturing the Armour & Clothing

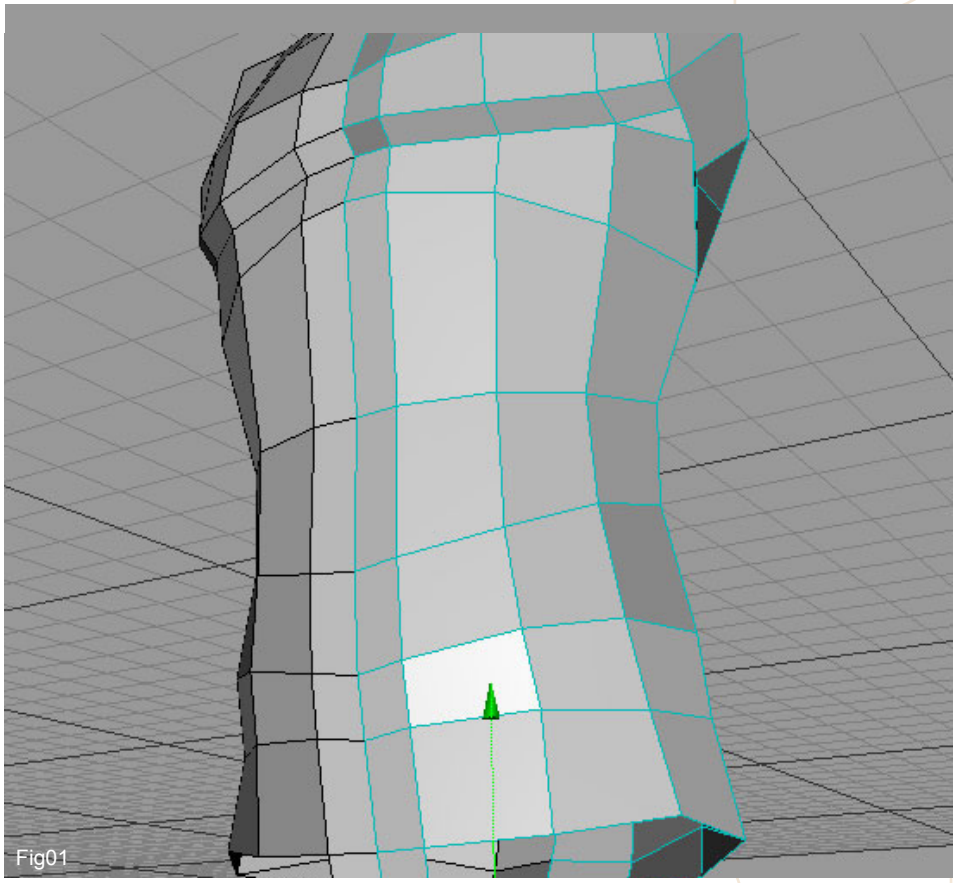
Enjoy ...

Part Three
Modeling the Arms & Legs

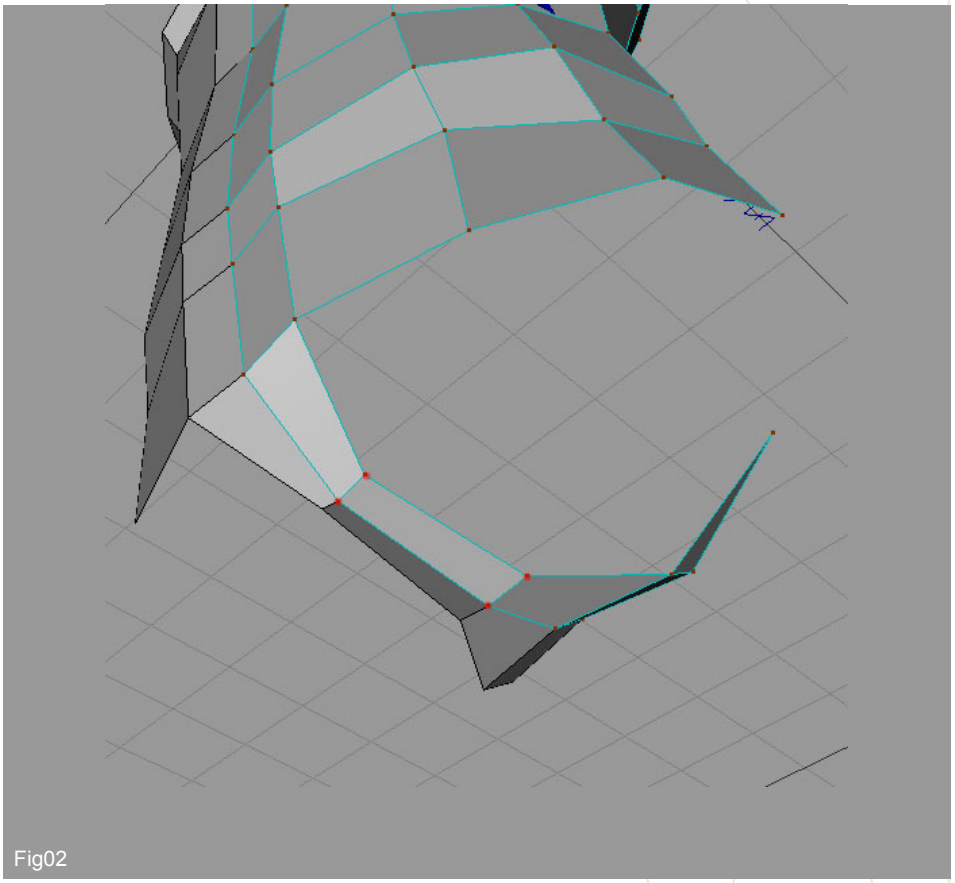
Introduction:

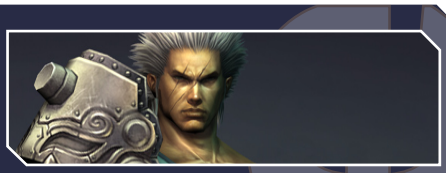
Welcome to the third part of an ongoing tutorial which will provide a step by step guide to building a low poly character based upon a model by Seong-Wha Jeong. In this installment, we shall start with the torso covered in last month's edition and build upon the mesh to create the arms and legs.

1. Open the file for part 2 of the tutorial and begin by selecting the edges as shown in Fig 01. Now use the Extrude tool (right click mouse > extrude) to make a copy of these two edges. Adjust the position of the new verts.


Fig01

2. The next step is to join the new edges together with another poly in between, so use the Create Polygon tool, Fig02. This will now form two holes from which we will extend the legs.


Fig02



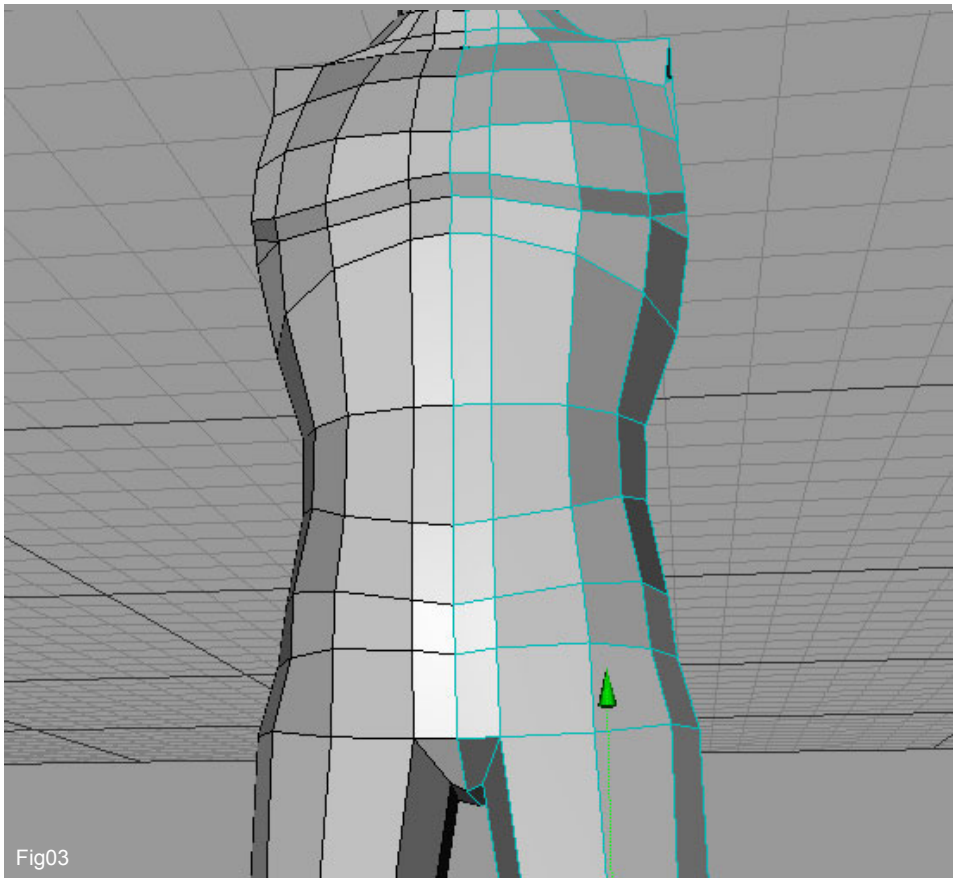


Fig03

3. Adjust the position of the points to form a decent shape and then extrude the edges, as shown in Fig03.

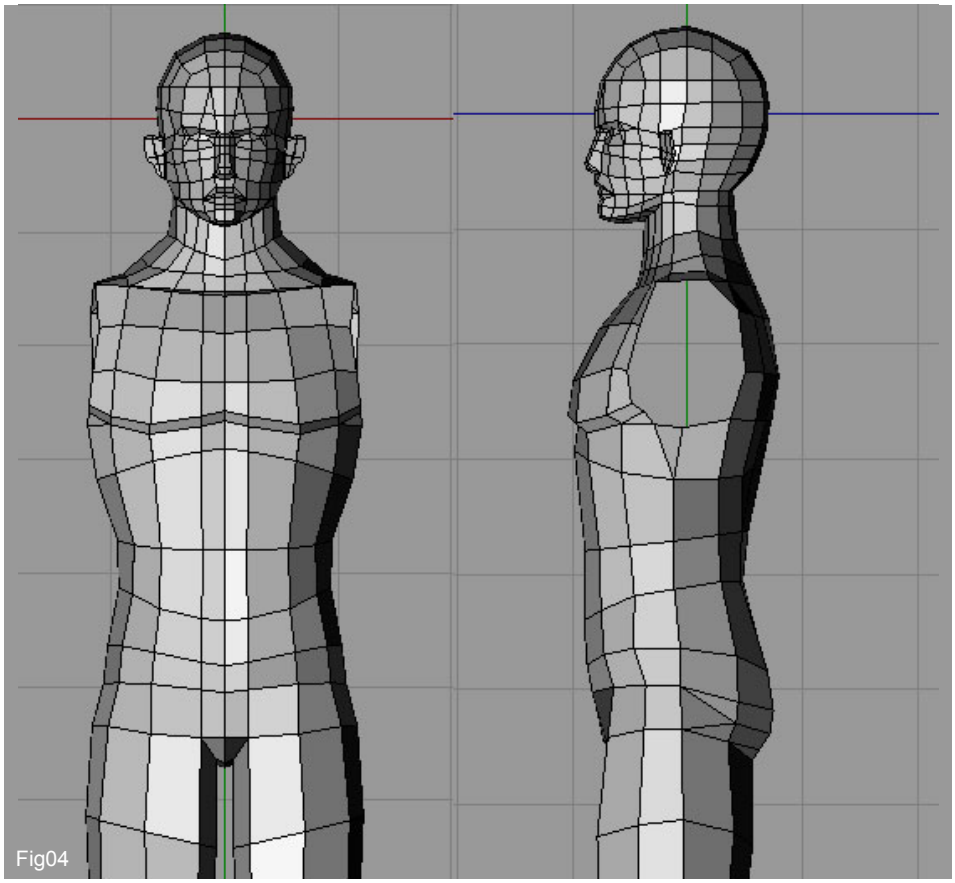
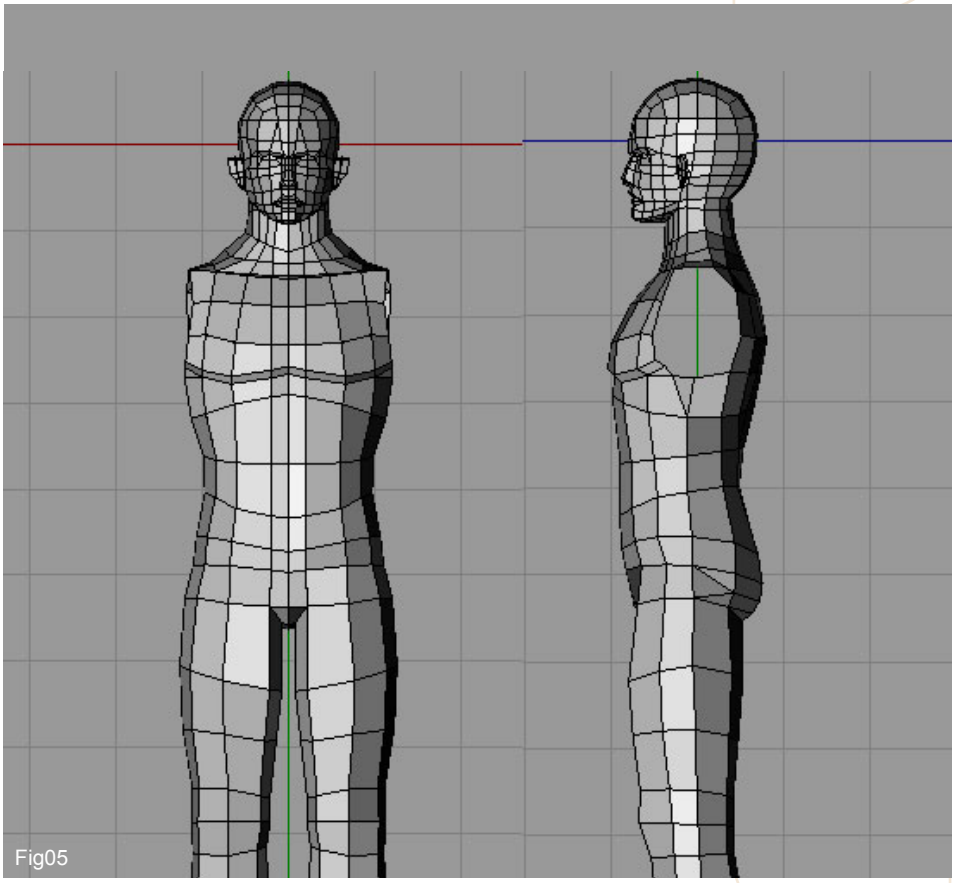


Fig04

4. Using this same technique extend the leg downwards to create the upper part of the leg, as shown in Fig04. Remember to tweak the positions of the verts each time you extrude the edges.

5. With the same procedure extend the leg downwards to form the knee, calves and ankle. Now you will notice by Fig05, that the leg comprises of six new edges, all of which were shaped differently in accordance with the different parts of the leg.


Fig05

6. The next step is to create the foot. Now you may notice that the polys that make up the leg are open-ended and now we need to create a cap to form the sole of the foot. We can do this in two different ways: you may use the “Close Polygon Hole” tool (Fig06) and then use the “Knife” tool to connect the verts, as shown on the left of the figure, or you can use the “Create Polygon” tool to obtain the polygons, as shown on the right of the figure.

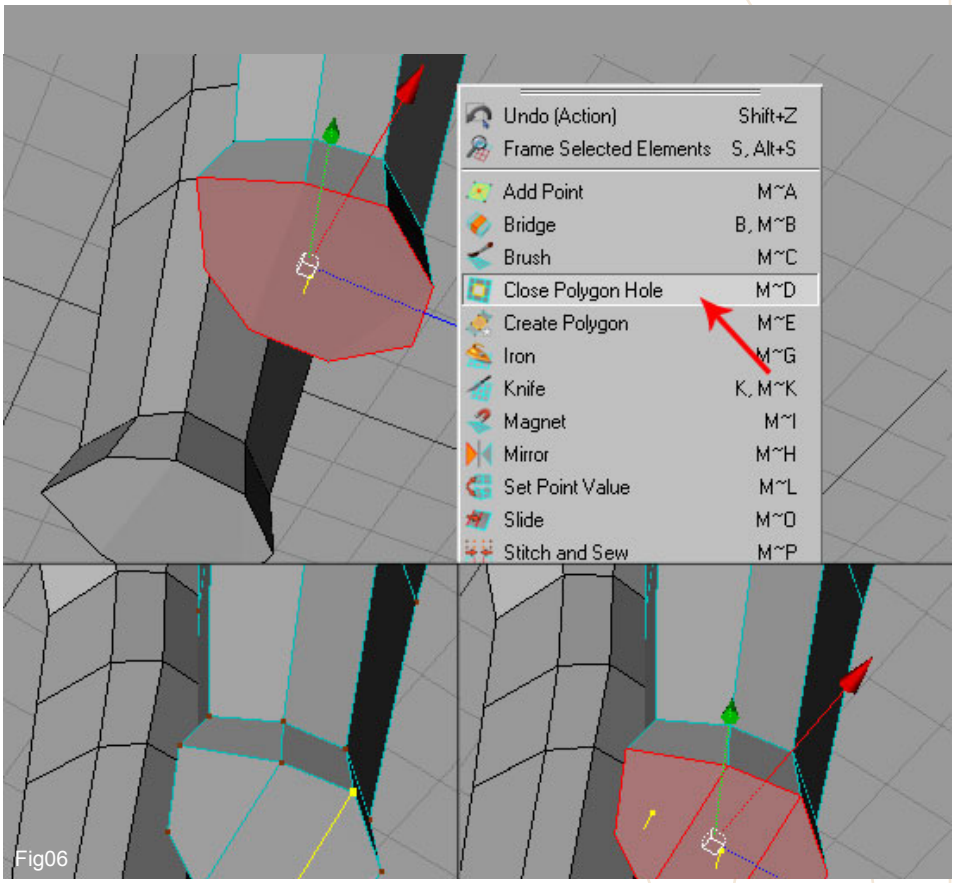
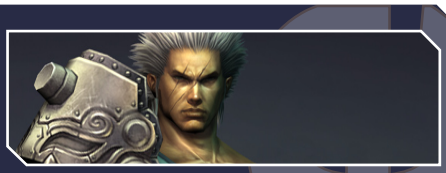


Fig06



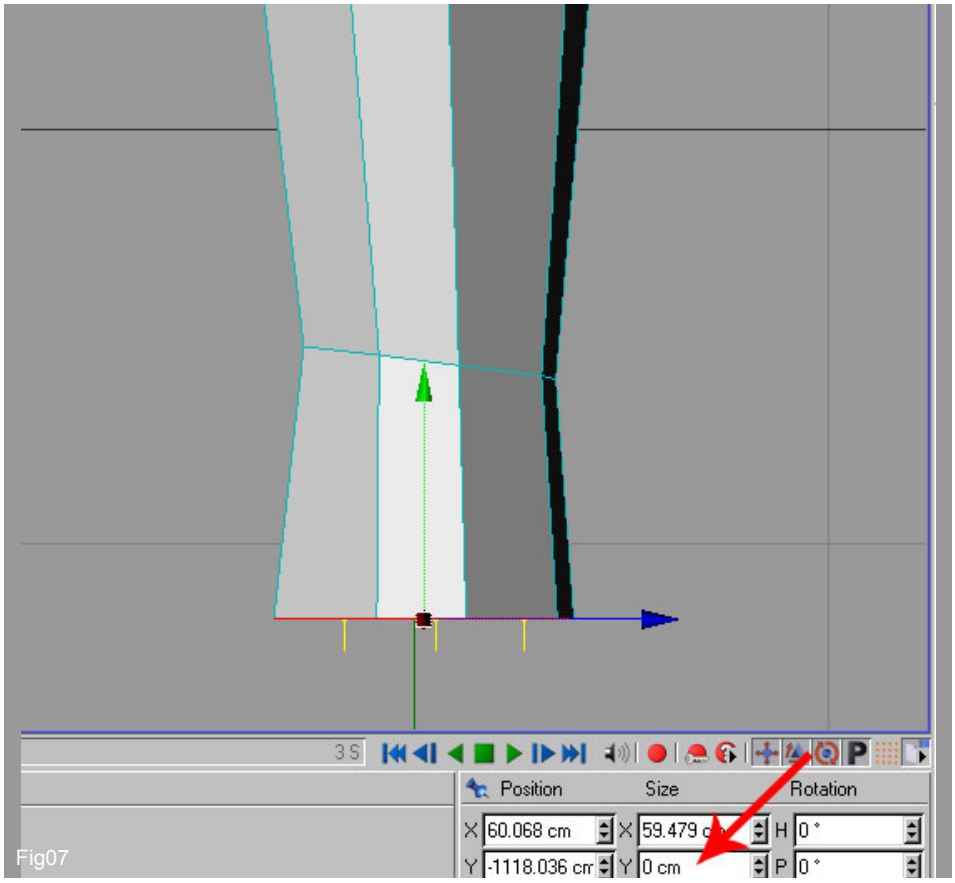
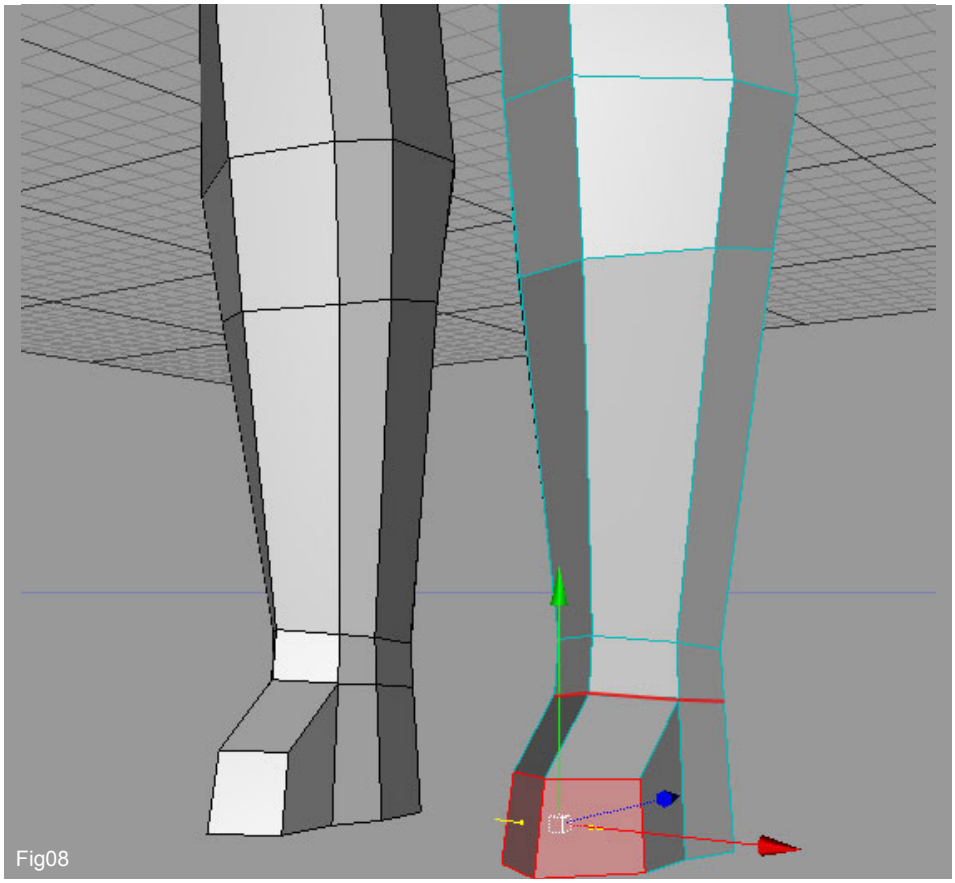


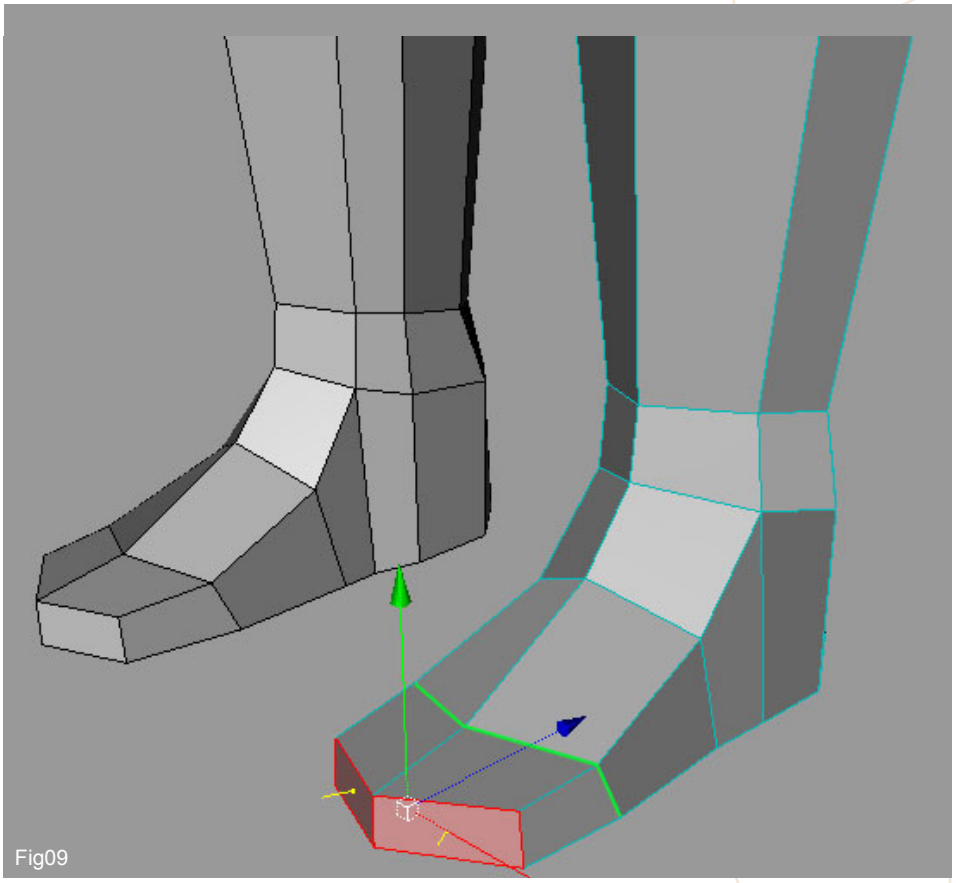
Fig07

After this we need to level the new polygons so select them and change the Y size (highlighted by the red arrow) in the Coordinates Manager, as like shown in Fig07.

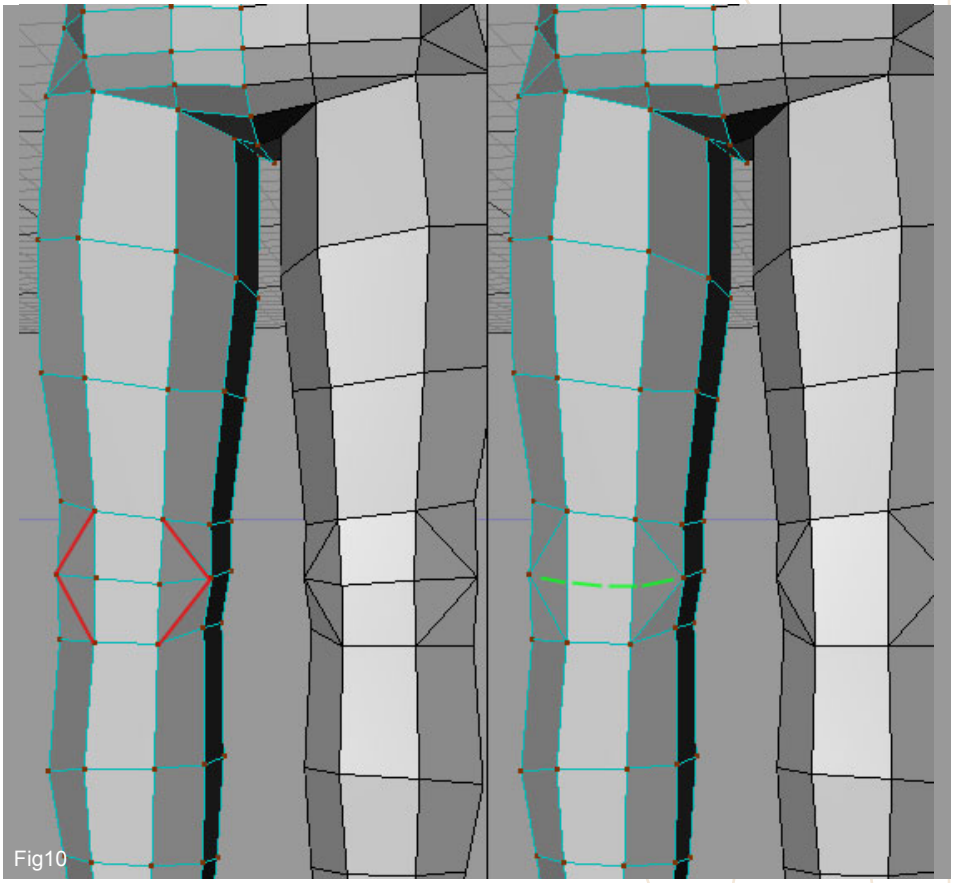

Fig08

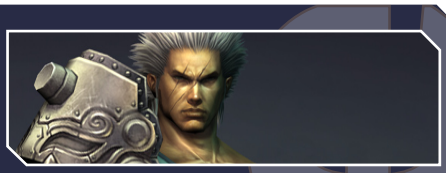
7. Before starting the feet, add a cut as shown in Fig08, then select the two front polys and Extrude them forwards, scaling them as you do so (Fig08).

Make another extrusion to add the toes, and in order to add a little more curvature add a further cut, as seen in green in Fig09.


Fig09

8. The legs are now completed. Before we move on to the arms we need to add new cuts in the back of knee area. That will allow us to get a better deformation of the legs when we bend the knees (assuming of course that we are going to attach a skeleton). Then, with the Knife tool, add the diagonal cuts, as shown on the left of Fig10.


Fig10



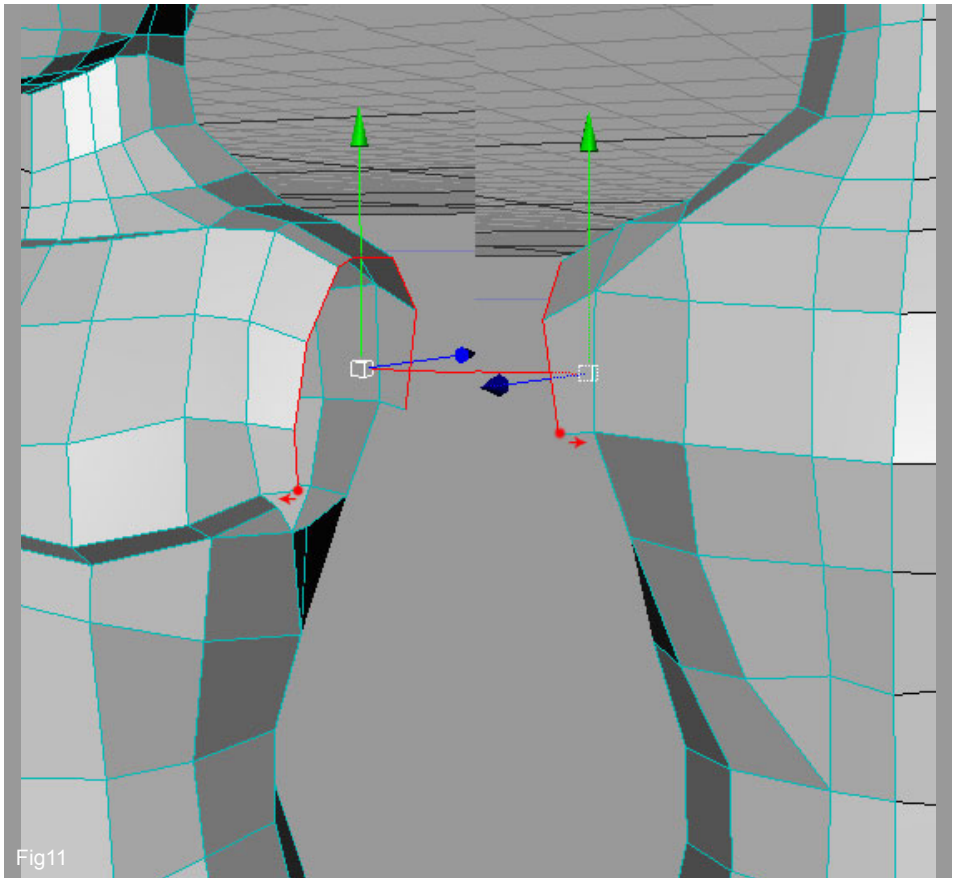


Fig11

Finally, weld the vertexes to eliminate the edges, marked in green on the right of Fig10.

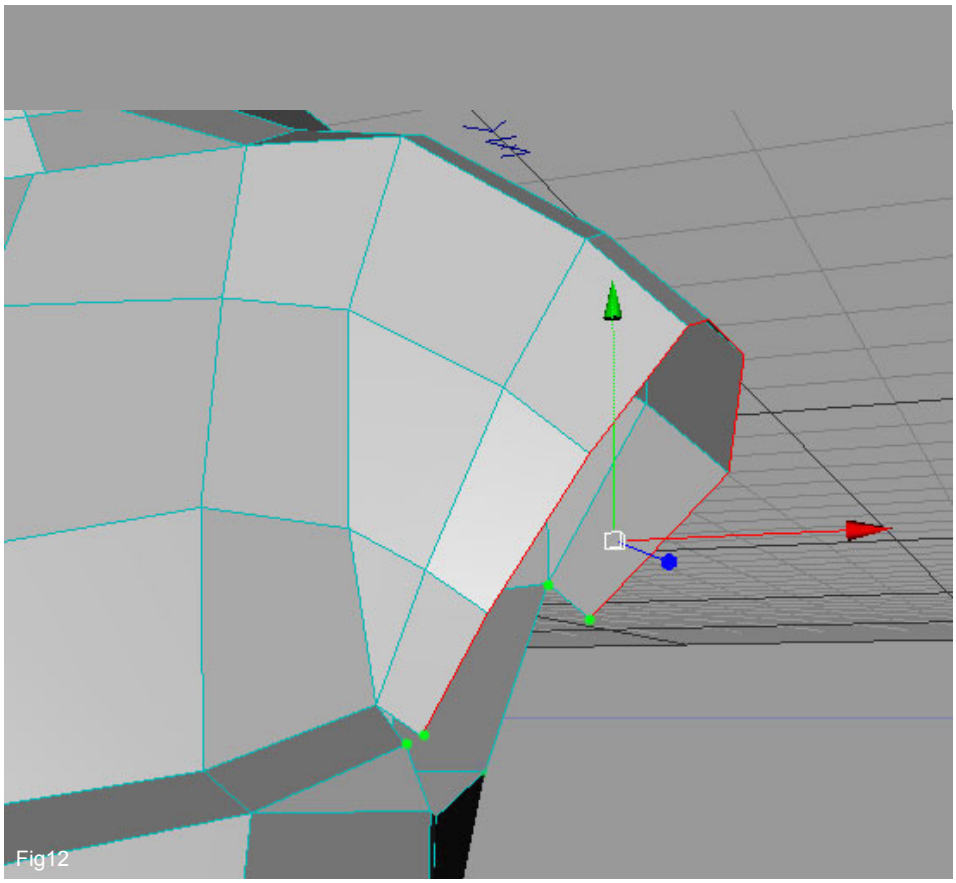
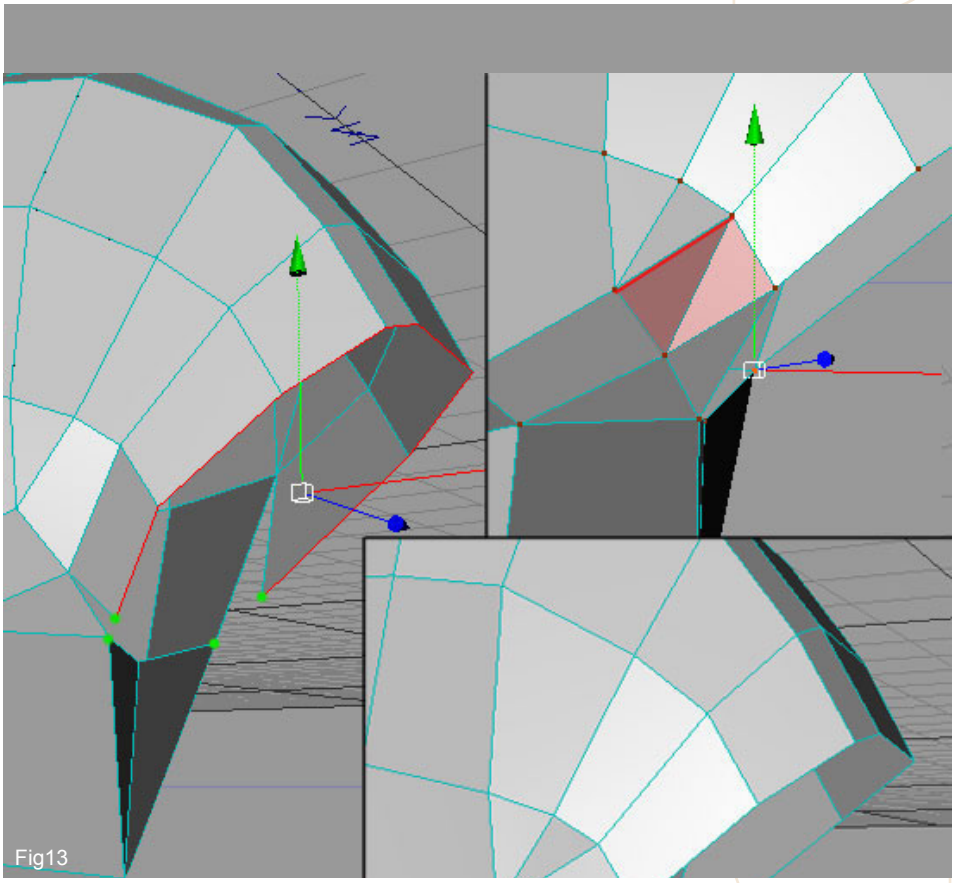


Fig12

9. It's time to extend the arms. Continuing from our torso in the previous tutorial, select the top edges and extrude them, as shown in Fig11. Now weld the two verts in red to the corner indicated by the arrows.

10. Extrude the edges once again and weld the vertexes like shown on the left of Fig13. With the Knife tool, make a cut, as shown on the top right of figure, then “un-triangulate” the two selected polygons. Delete the polygon, as shown on the bottom right of the figure.


Fig13

11. Adjust the mesh to obtain a good shape. Select the edges, as shown in Fig14, and extrude them. Weld the two vertexes marked in red in figure. Add a cut on the back, as shown on the bottom right of figure.

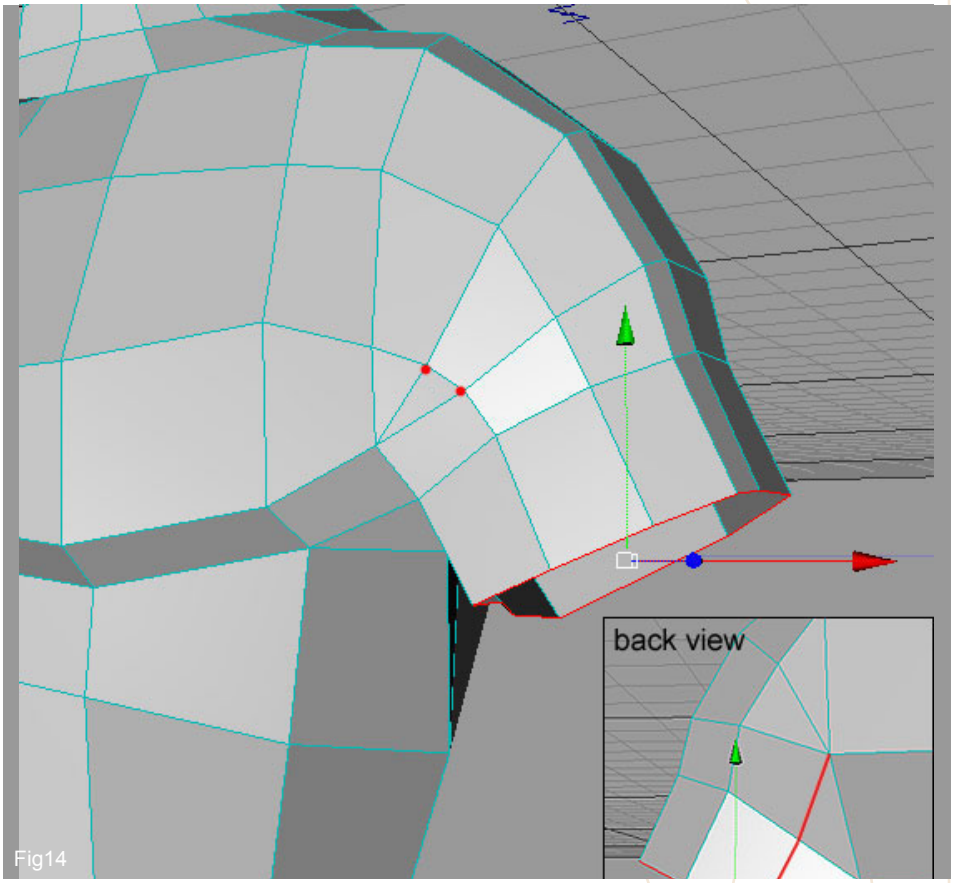
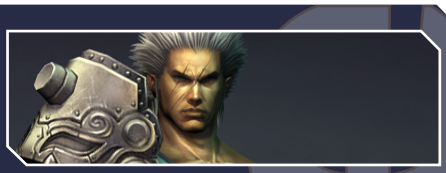


Fig14



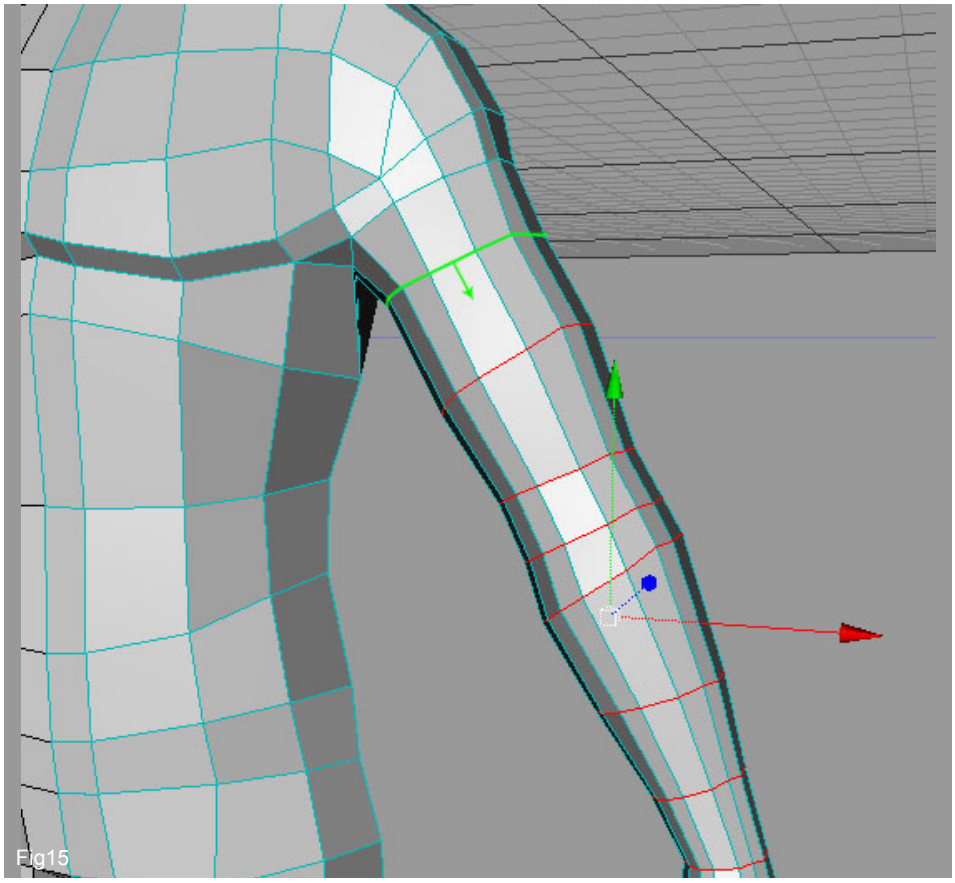


Fig15

12. Reposition the new verts to get a spherical shape and then keep extruding the edges. Remember to adjust the mesh each time you make an extrusion until you get the wrist, as shown in Fig15.

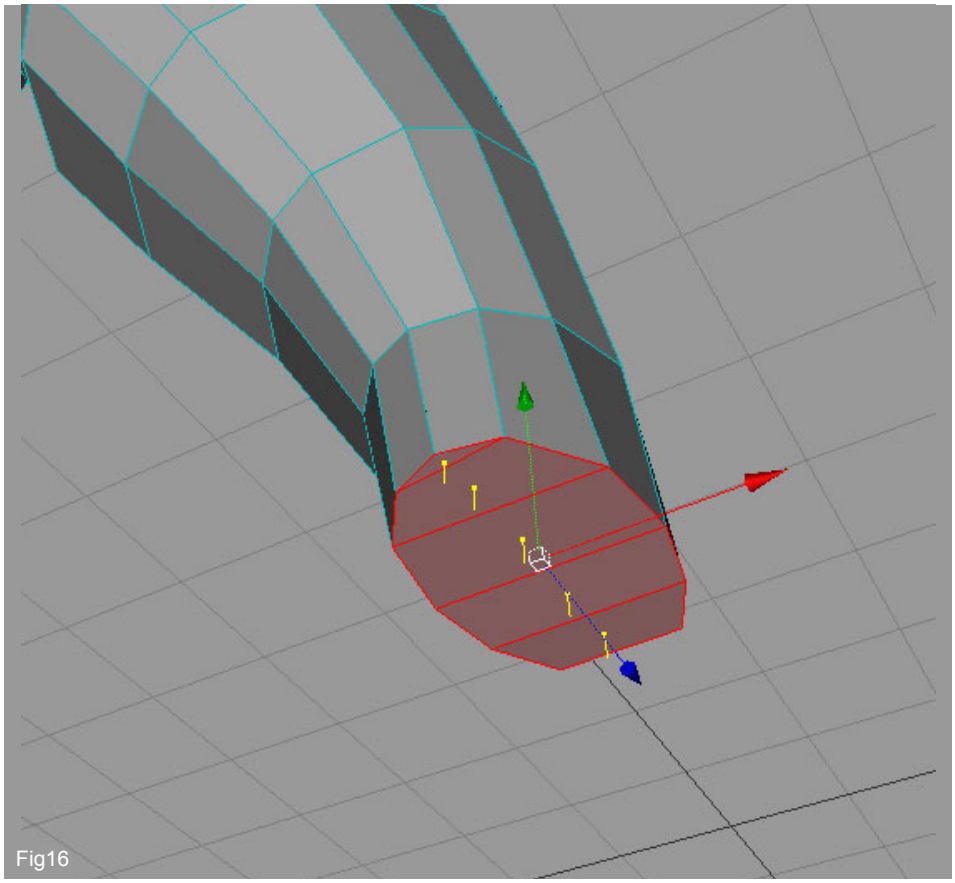
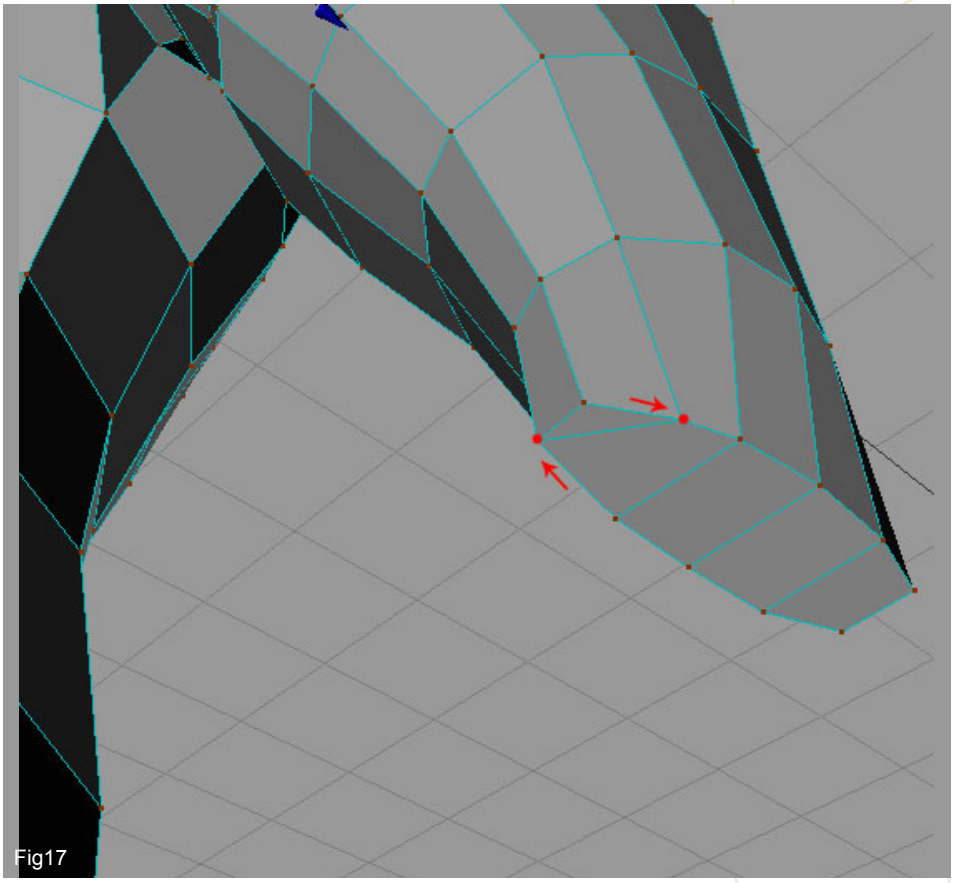


Fig16

13. As we did for the foot, we are going to cap the end of the arm with five polygons as shown in Fig16.

14. In order to prepare for the thumb, move the two vertexes, as shown in Fig17.


Fig17

After this, add a cut on the underside (Fig18) in the position numbered 1. This will leave a five-sided poly on the palm side of the hand and so to alleviate this continue the cut upwards in the position numbered 2. Now to give the thumb area more shape, add a further cut in the position numbered 3.

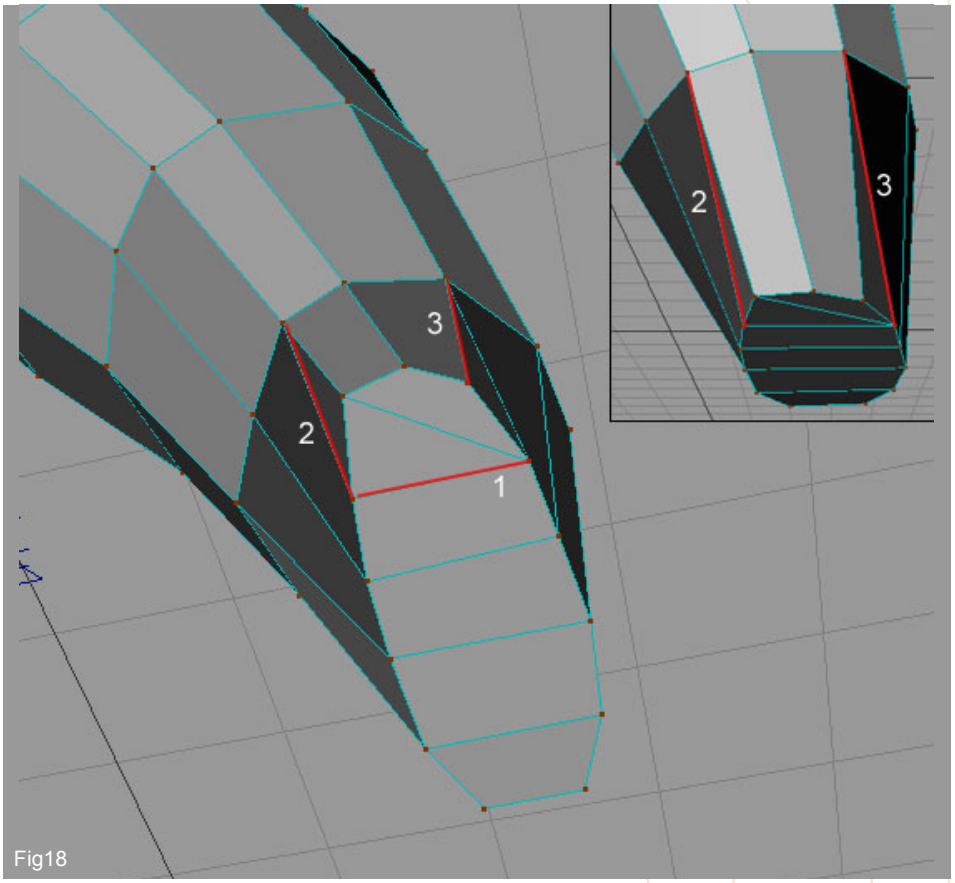
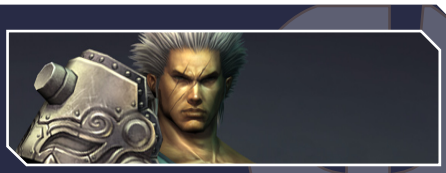


Fig18



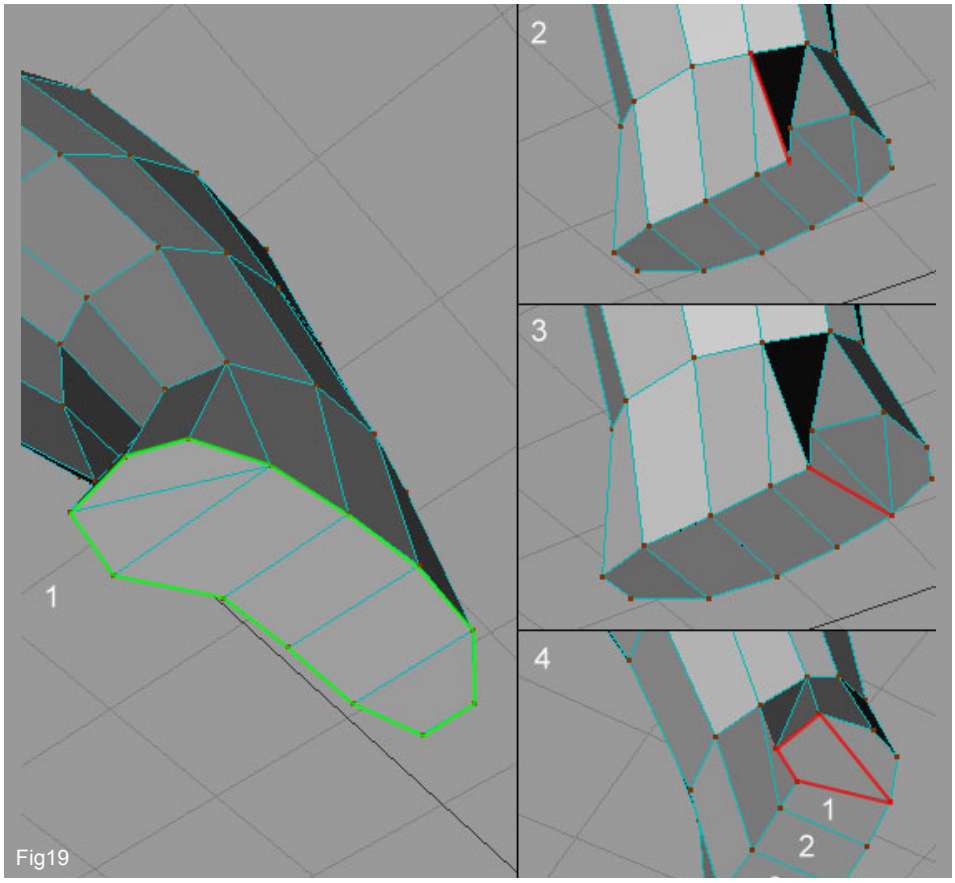


Fig19

15. On the left of Fig19 we can see the underside of the hand and you'll notice that we have four polygons that can be used to extrude the fingers. What we need to do, before the extrusion of fingers, is to re-shape the mesh (step 1). First, make a cut as indicated by the red line in the top right of the figure (step 2) and then move the new vert down slightly. Follow with a cut from this new vert to the outside of the hand (step 3). Now "un-triangulate" the two triangles to obtain the quadrangles, as shown on the bottom right of figure (step 4).

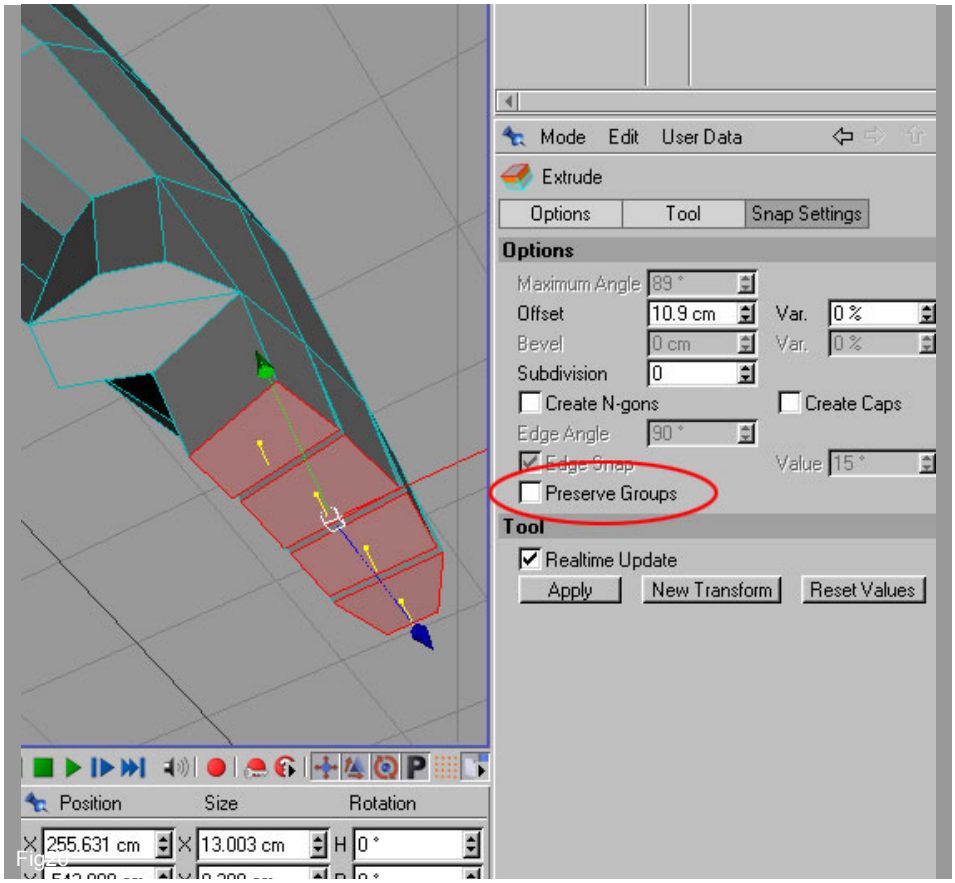
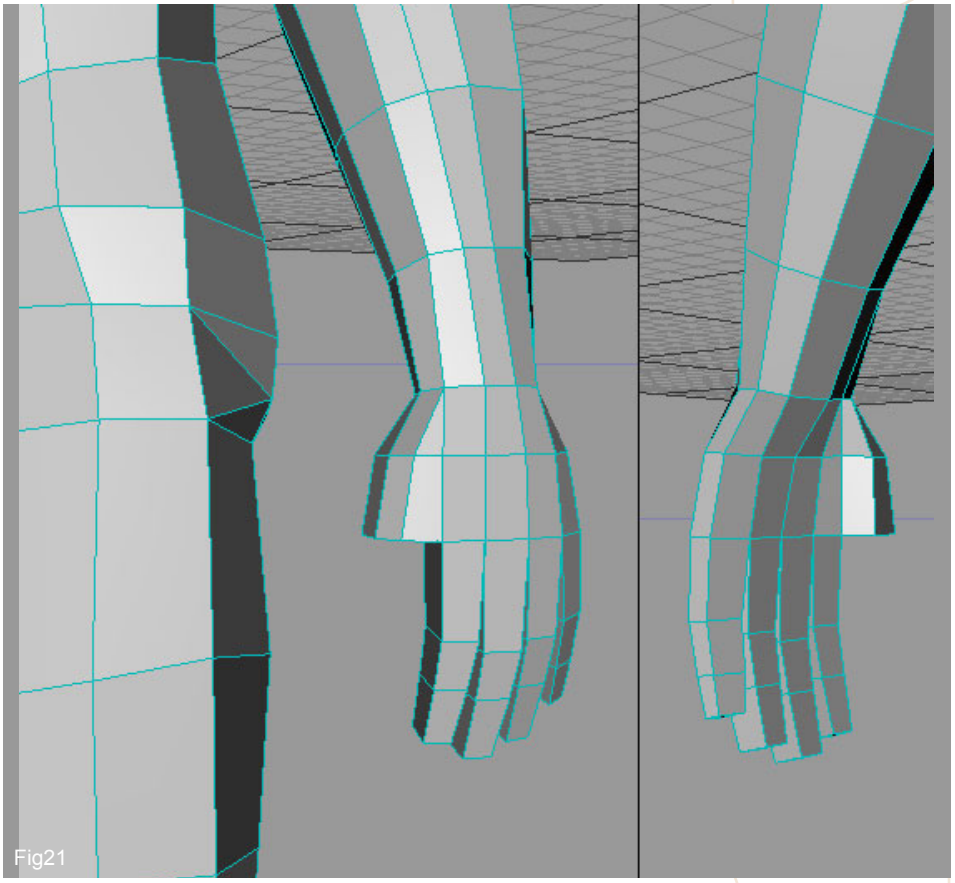


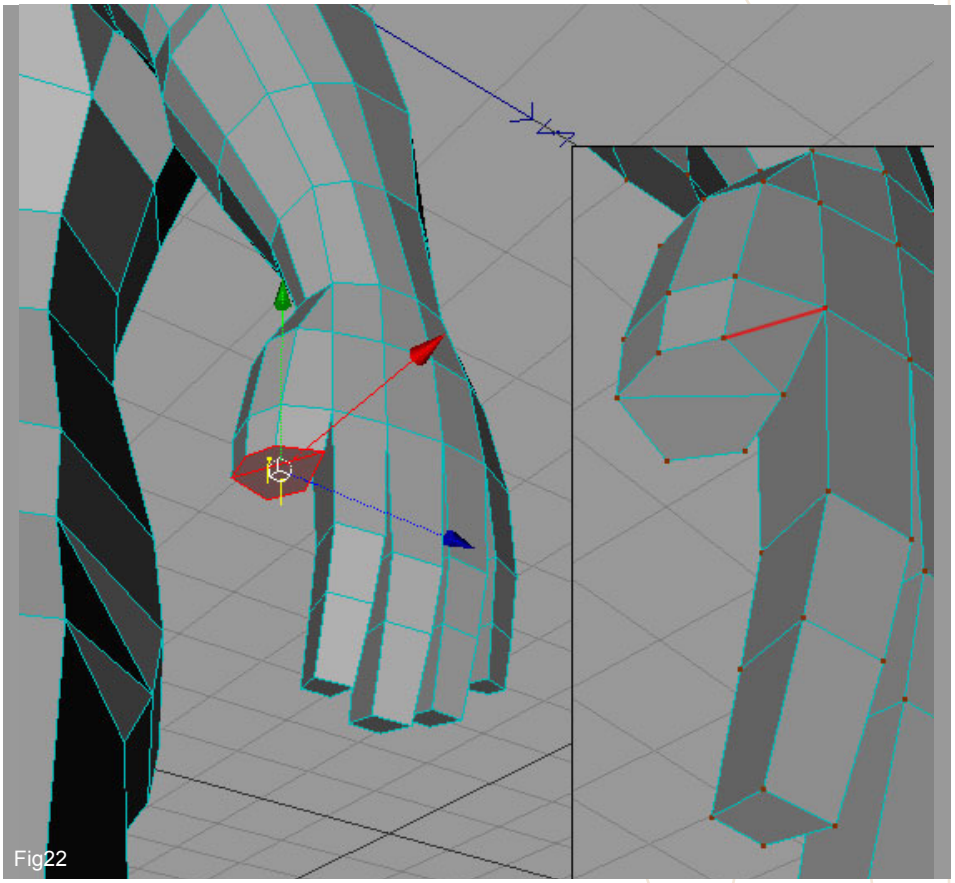
Fig20

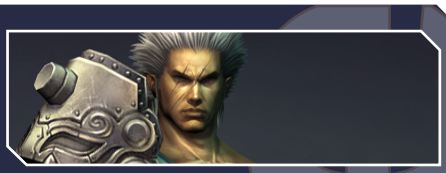
16. Select these four polygons and extrude them downwards, making sure to disable the "Preserve Groups" label in the options of Extrude (Fig20).

Rotate the new polygons a little and then do a further two extrusions, scaling them down somewhat to shape the fingers (Fig21). To scale the polygons, use the “Normal Scale” tool (right-click mouse > normal scale).


Fig21

17. This is the same procedure for the last finger, so select the two polygons and extrude them, but this time enable “Preserve Groups” option. (Fig22). In order to create a better flow from the palm, add a cut, as shown on the right of the figure.


Fig22



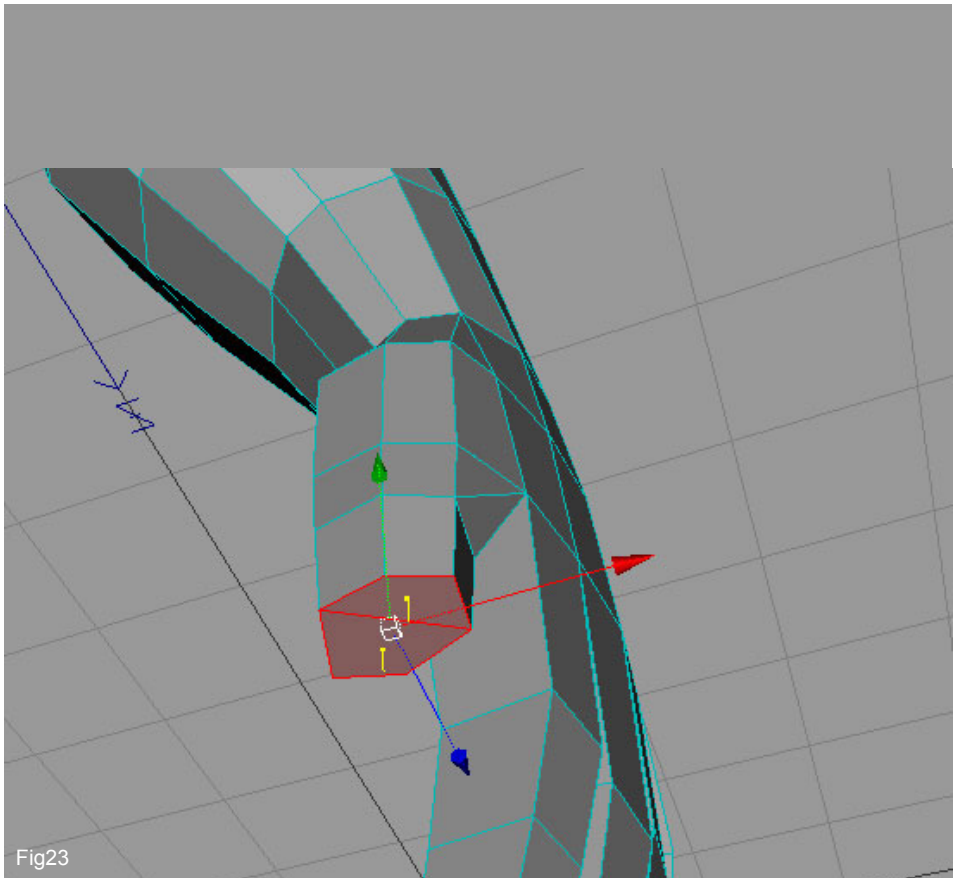


Fig23

18. Extrude the polygons once again, as shown in Fig23.

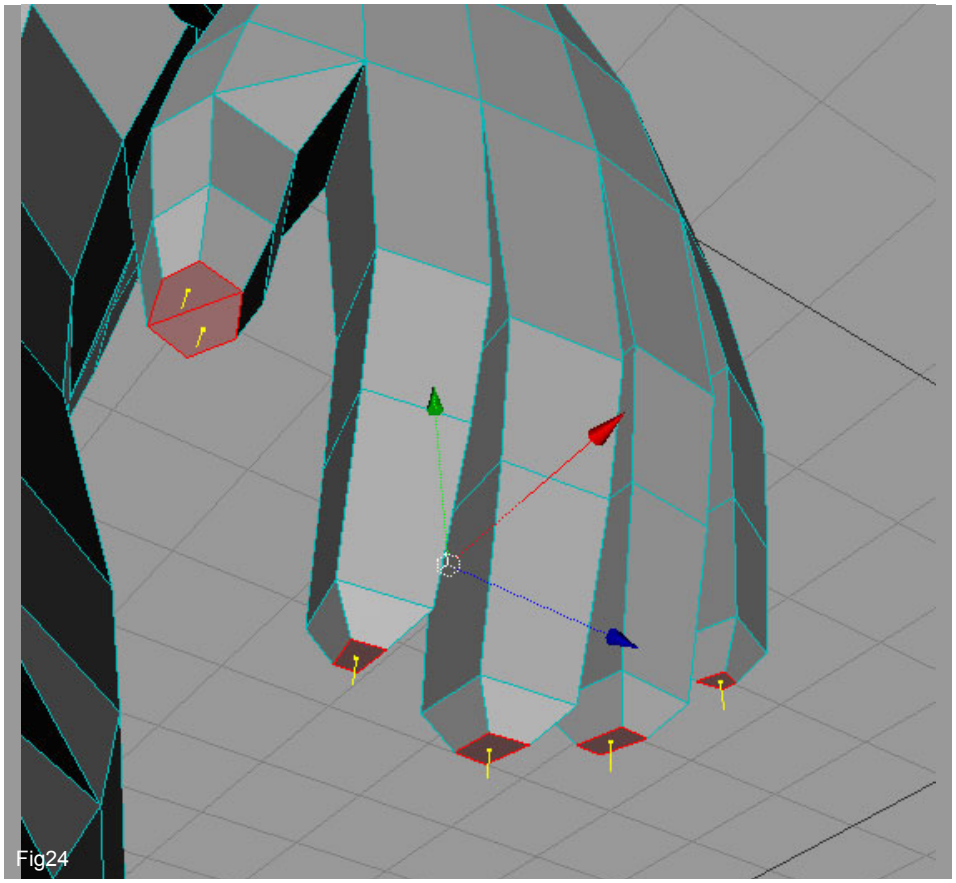
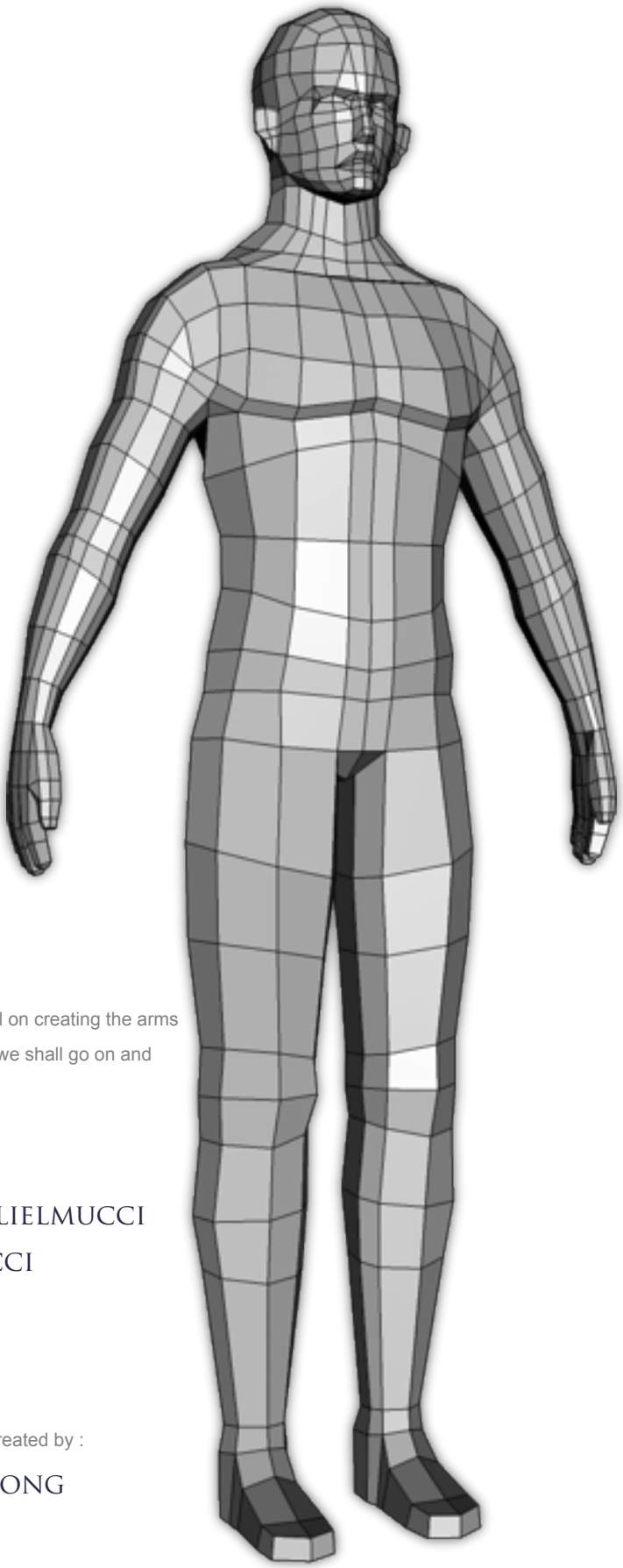
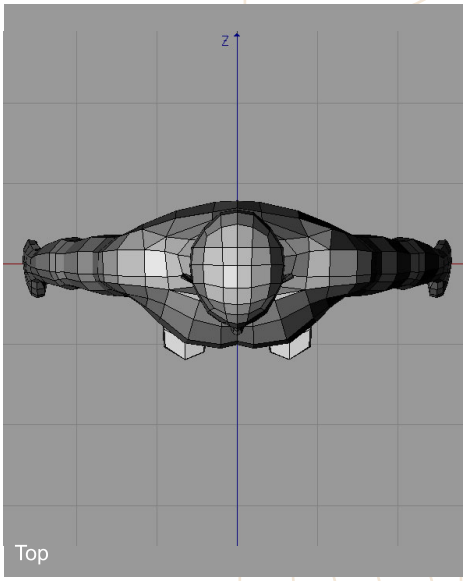
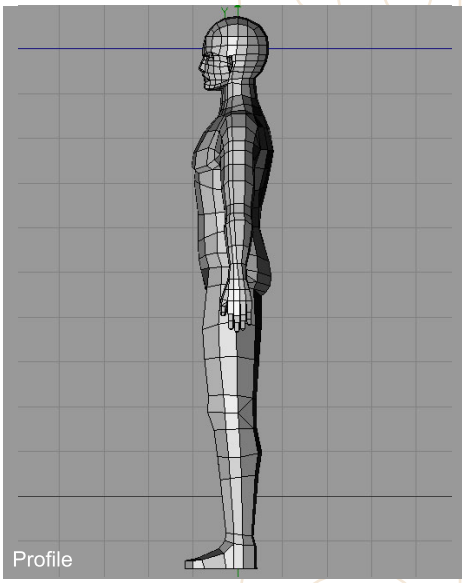


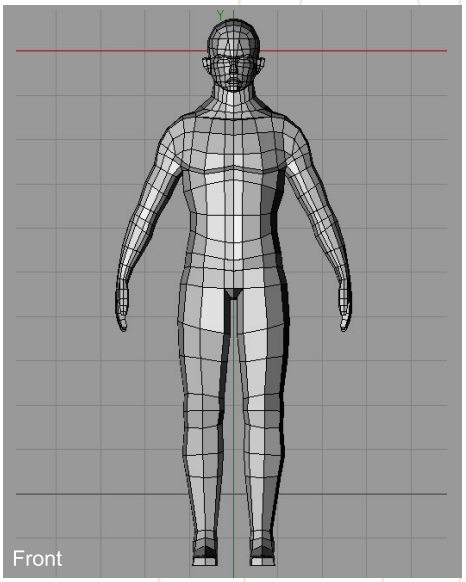
Fig24

19. The final stage is to select the six polygons that make up the tips of the fingers, and add a “Bevel” (right-click mouse > bevel) as shown in Fig24.









This concludes the tutorial on creating the arms and legs and next month we shall go on and add clothing and hair.

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The Swordmaster

lightwave

Is our new precise, step by step tutorial for a highly polished, low polygon game character with detailed texturing for real-time rendering. We have had the tutorial created for the 5 major 3d applications, but even if you are not a user of one of them, the principles should be easily followed in nearly all other 3d applications. Over the next 8 months we will outline in detail the process for creating the 'Swordmaster' you see on the left. The schedule for the different parts of the tutorial is as follows:

Issue 009 May 06

Modeling the Head

Issue 010 June 06

Modeling the Torso

Issue 011 July 06

Modeling the Arms & Legs

Issue 012 August 06

Modeling the Clothing & Hair

Issue 013 September 06

Modeling the Armour

Issue 014 October 06

Mapping & Unwrapping

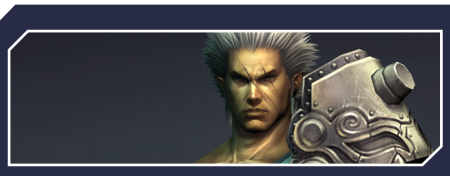
Issue 015 November 06

Texturing the Skin & Body

Issue 016 December 06

Texturing the Armour & Clothing

Enjoy ...



SwordMaster Part 3: Modelling the Arms and Legs

Introduction:

Welcome to the second part of the Swordmaster tutorial. This month we will start from the head and torso model built in last month's tutorial part and create the arms and legs for the Swordmaster model.

1. If you have followed last month's tutorial, go ahead and load the head and torso model we created then. First we'll build the area between the legs to close the pelvic area. Select three lowest points on the front and back area, extend them once and drag them inward. Stretch them down a bit along X axis.

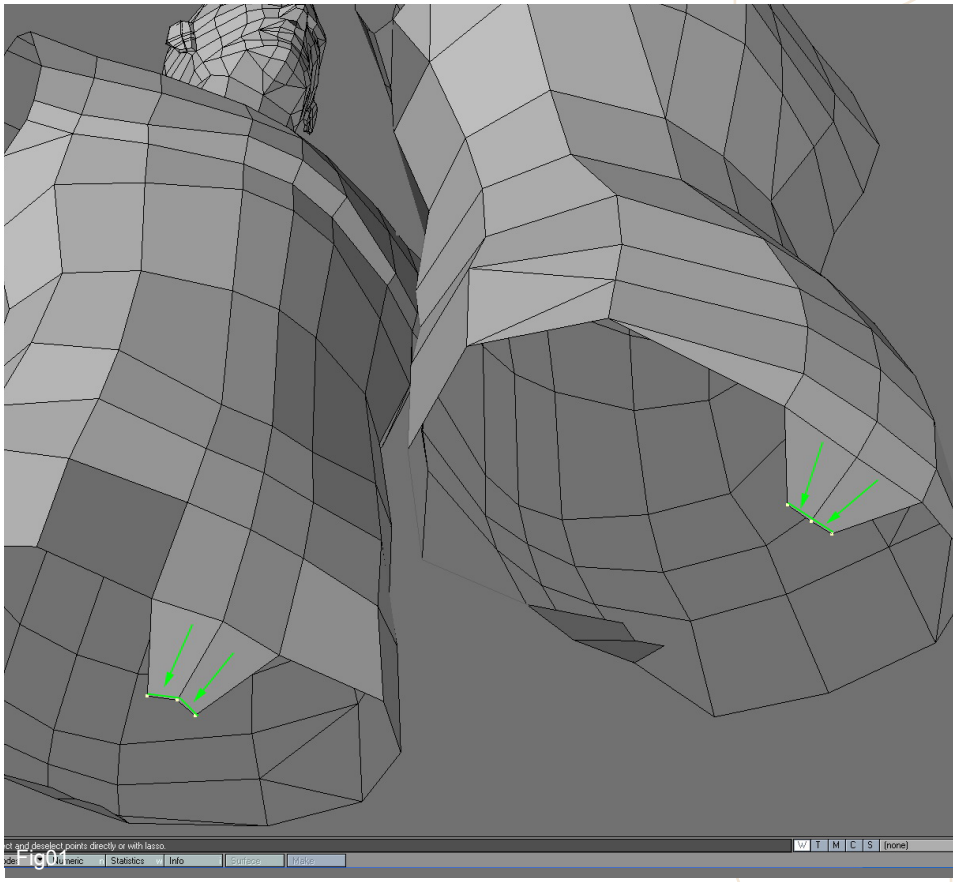


Fig01

2. Extend the back part one more time and move it closer to the front part. Weld three point pairs marked with blue to close the area between the legs. This will form two holes from which we will create legs for the model.

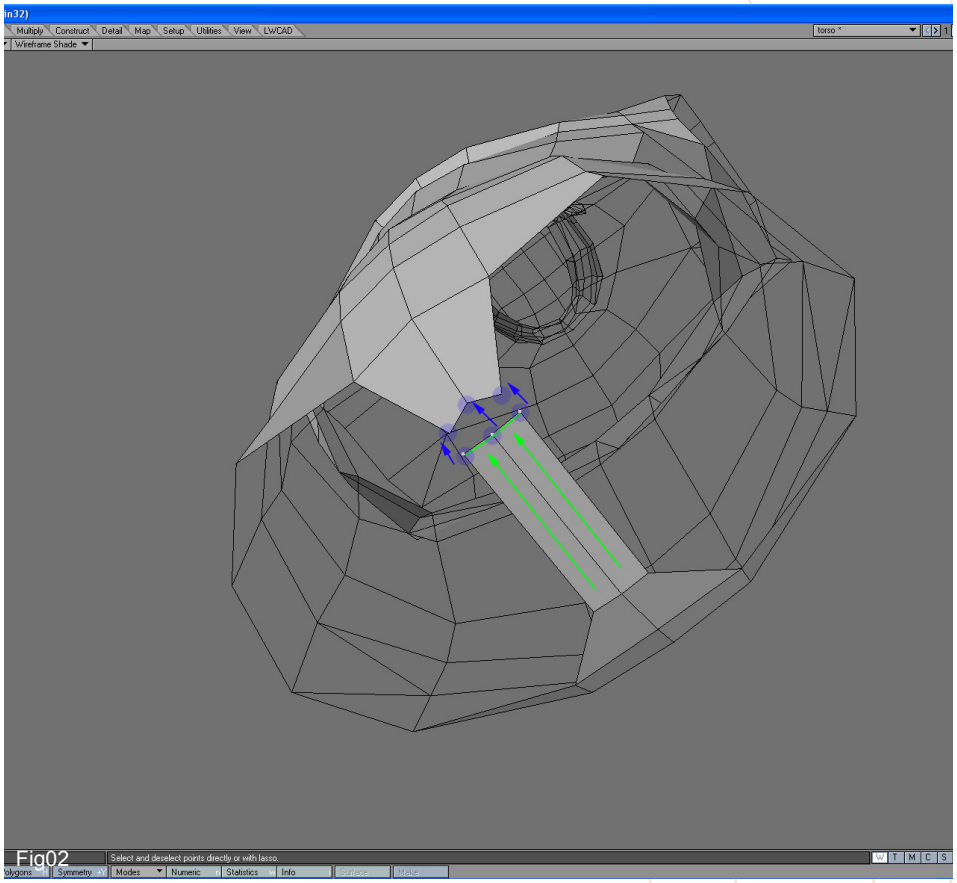
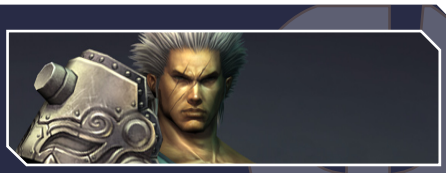


Fig02



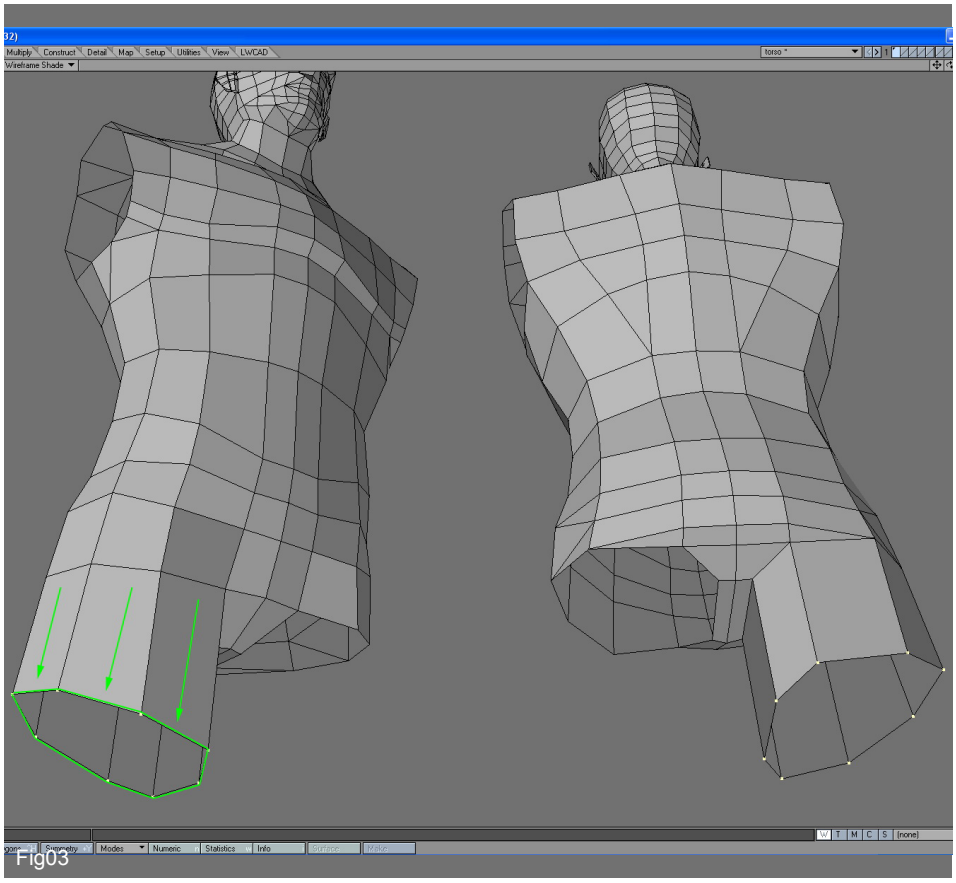


Fig03

3. Select points that make one of the leg holes, extend them once and move them down. Using the Drag tool, rearrange points so they are forming a more natural shape.

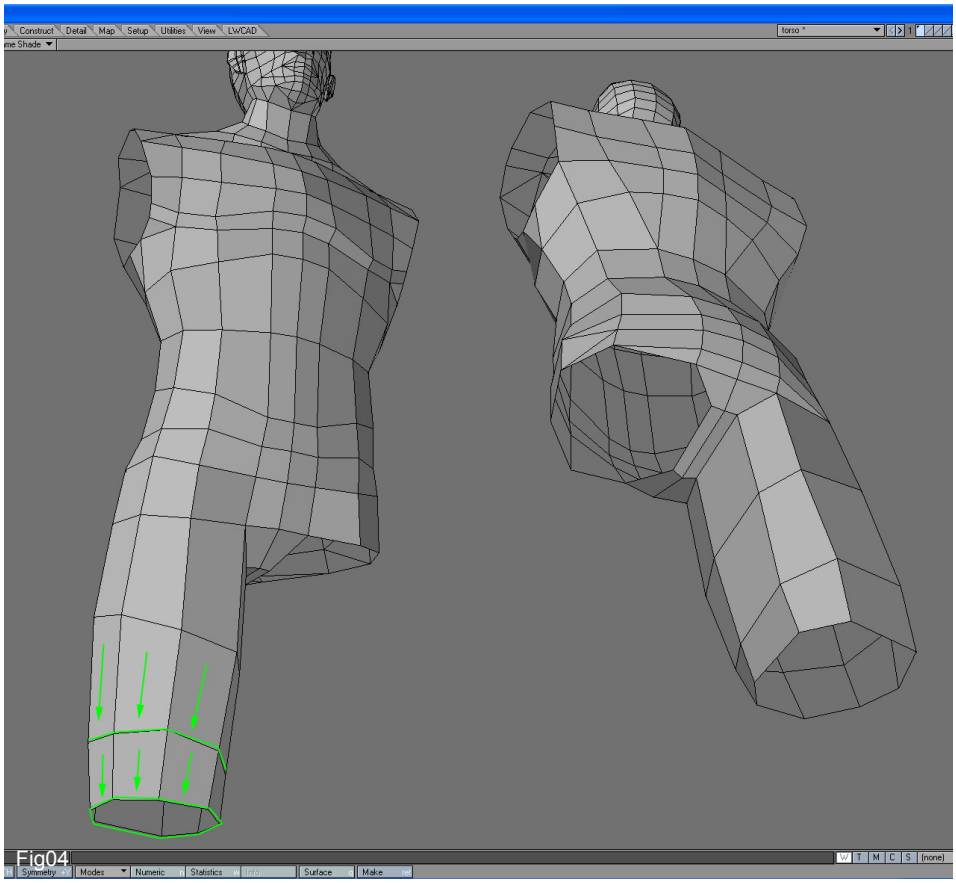


Fig04

4. Make two more extensions using the same method, as in the previous step. Don't forget to readjust every time after extending.

5. Now we'll go down to the ankle using the same extend-adjust technique. Notice there are six new extensions, each shaped differently according to the part of the leg.

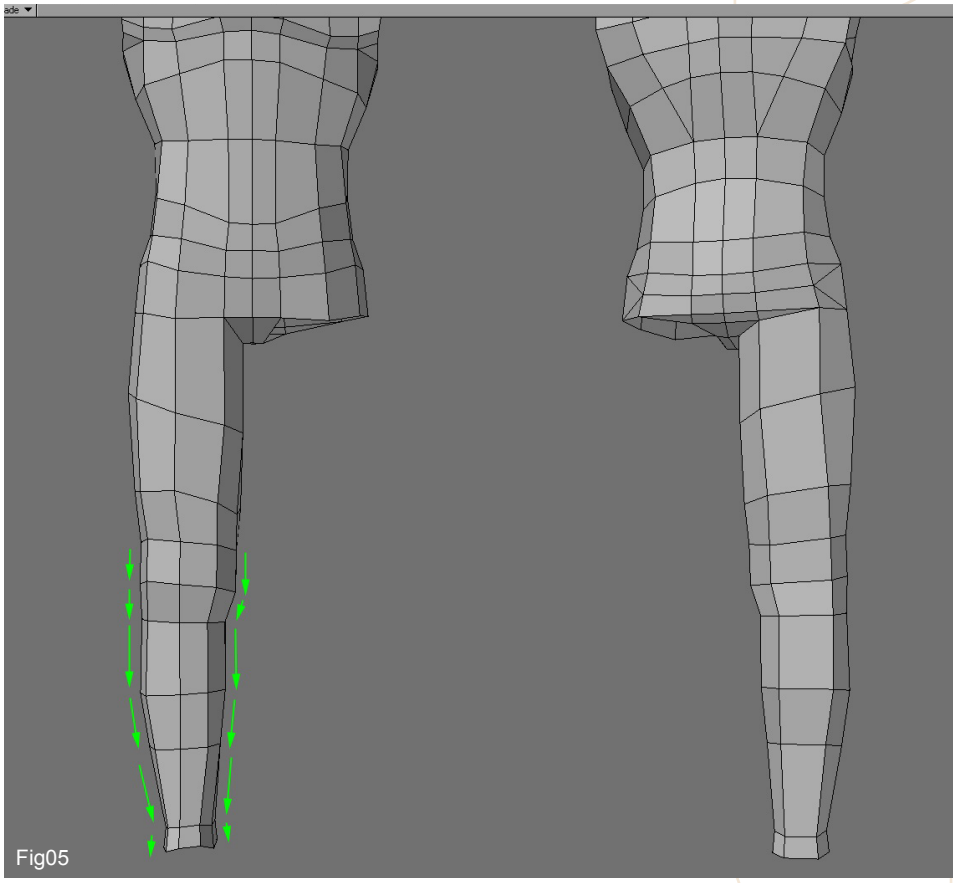


Fig05

6. Select the lowest points of the leg part, extend them once and move them downward. To level these points on the same place for the bottom of the foot, use the stretch tool ("h"), and make sure the Action mode is set to selection (Shift+F8) and, holding the Ctrl key, stretch them down to zero. That comes as a nifty technique for levelling all selected points into same place along any of the axis.

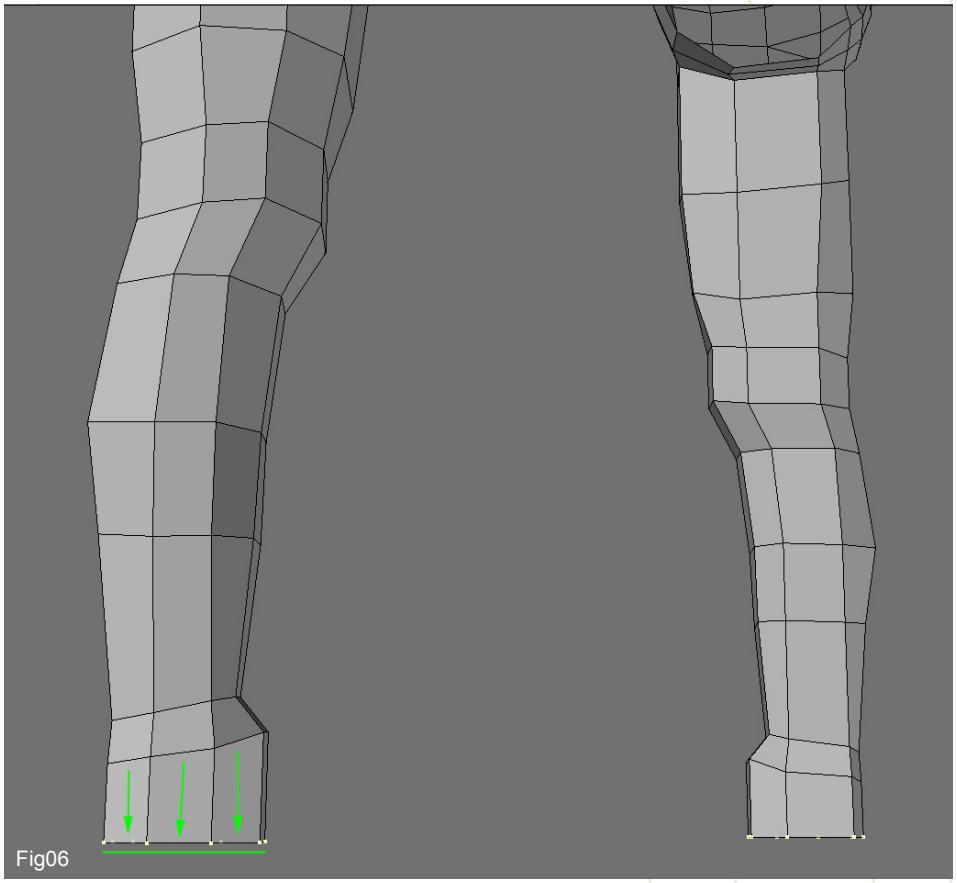
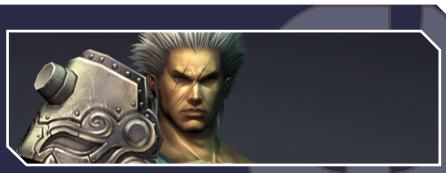


Fig06



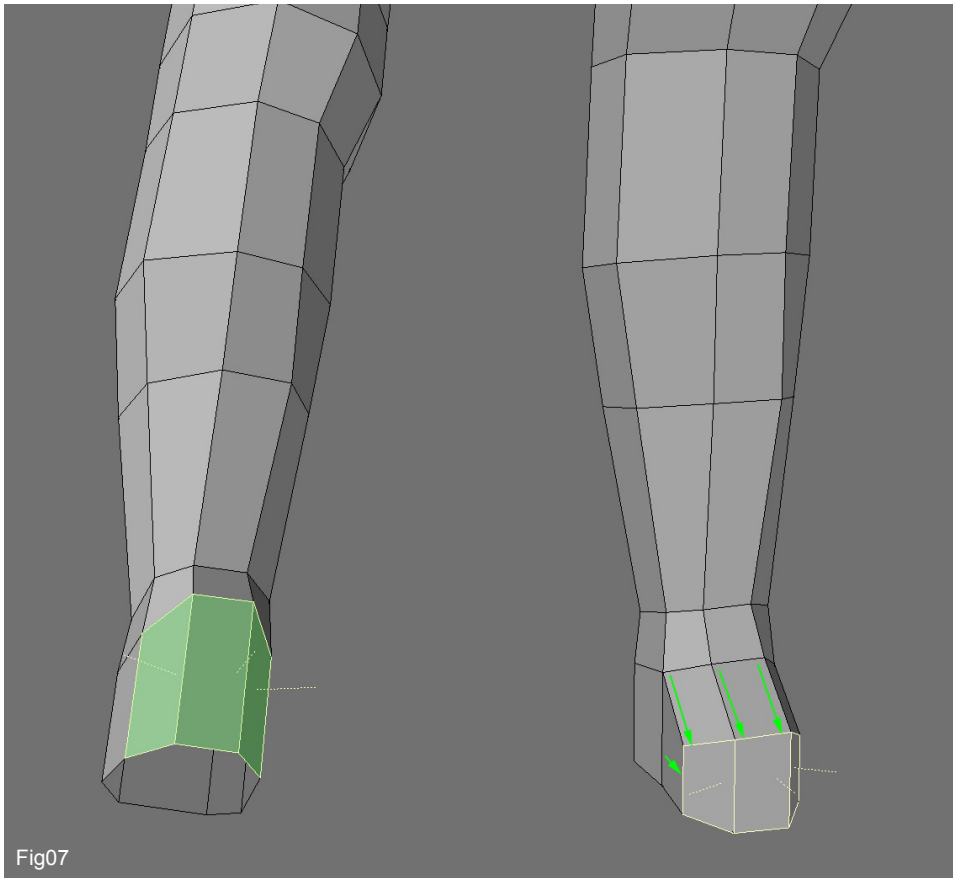


Fig07

7. Select the front three polygons, hit “e” to extend them and move them to the front. As you can see the Extender Plus tool (“e”) work just the same for points and polygons.

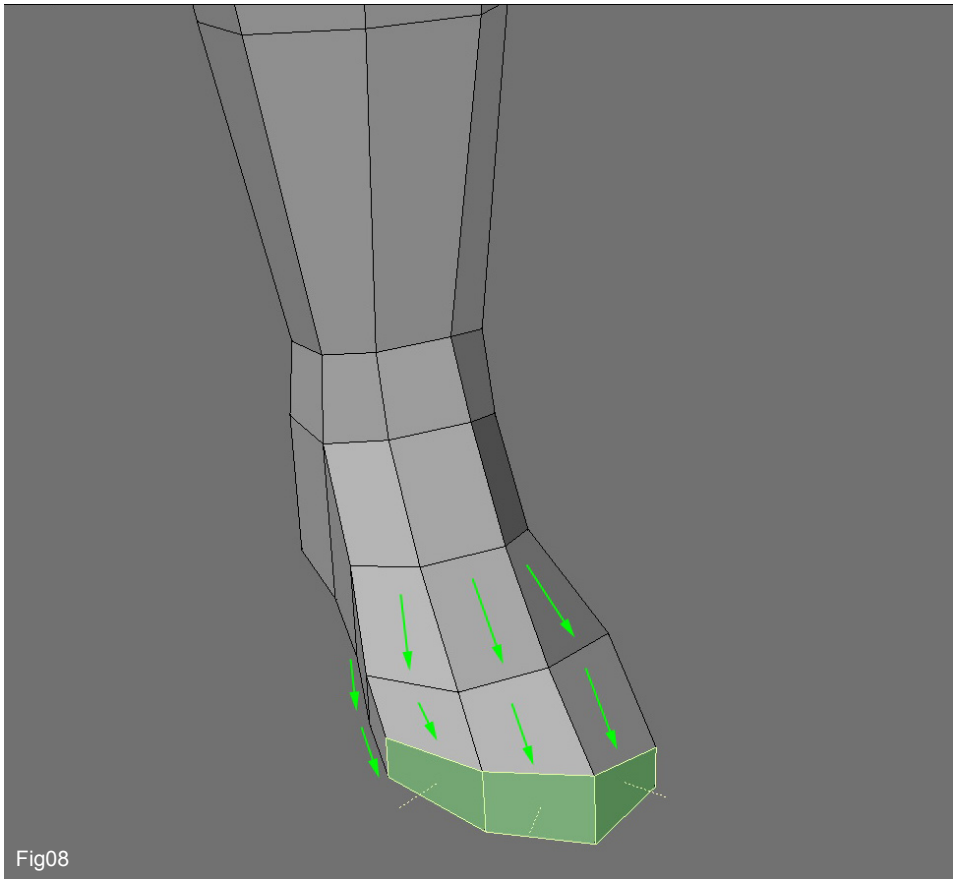


Fig08

8. Do two more extensions with the front 3 polygons in the same fashion that we used in the last step. Finally, readjust the shape so it’s more like a foot.

9. Fill the gap at the bottom by selecting points and using the create polygon (“p”) tool.

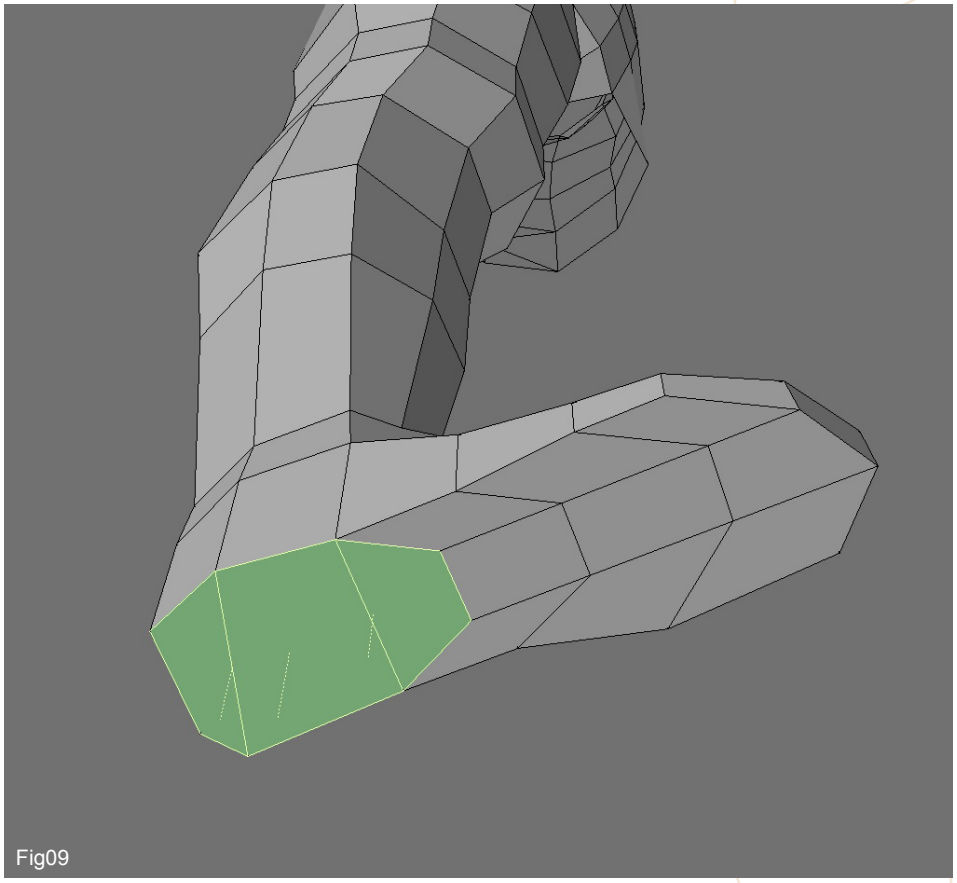


Fig09

10. To finish the leg area there is still some little things that need to be done. The back part of the knee area needs to be fixed in order for it to bend properly once it’s animated. So, select polygon marked green in image (step 1), switch to point selection mode and select points marked blue. Activate Split tool (Multiply-Subdivision-Split) to add a diagonal cut to polygon. Do the same thing for the polygon under it (step 2). And the same for the polygons on the other side (step 3). Select the polygons shown marked in image (step 4.) and Merge them (Shift+z). Again, select two marked polygons in the middle (step 5.) and Merge them. Finally, select polygons of the leg area, mirror them along X axis and merge points to create a symmetrical other leg.

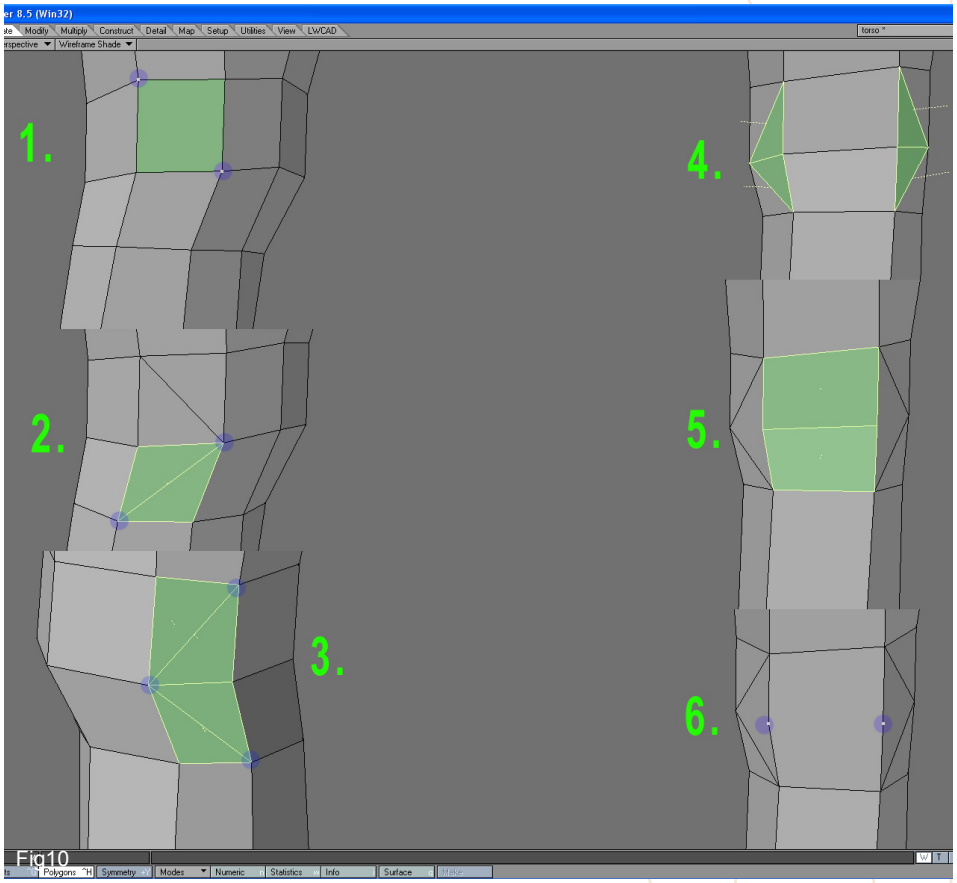
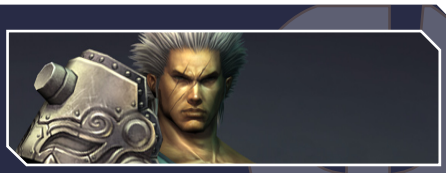


Fig10



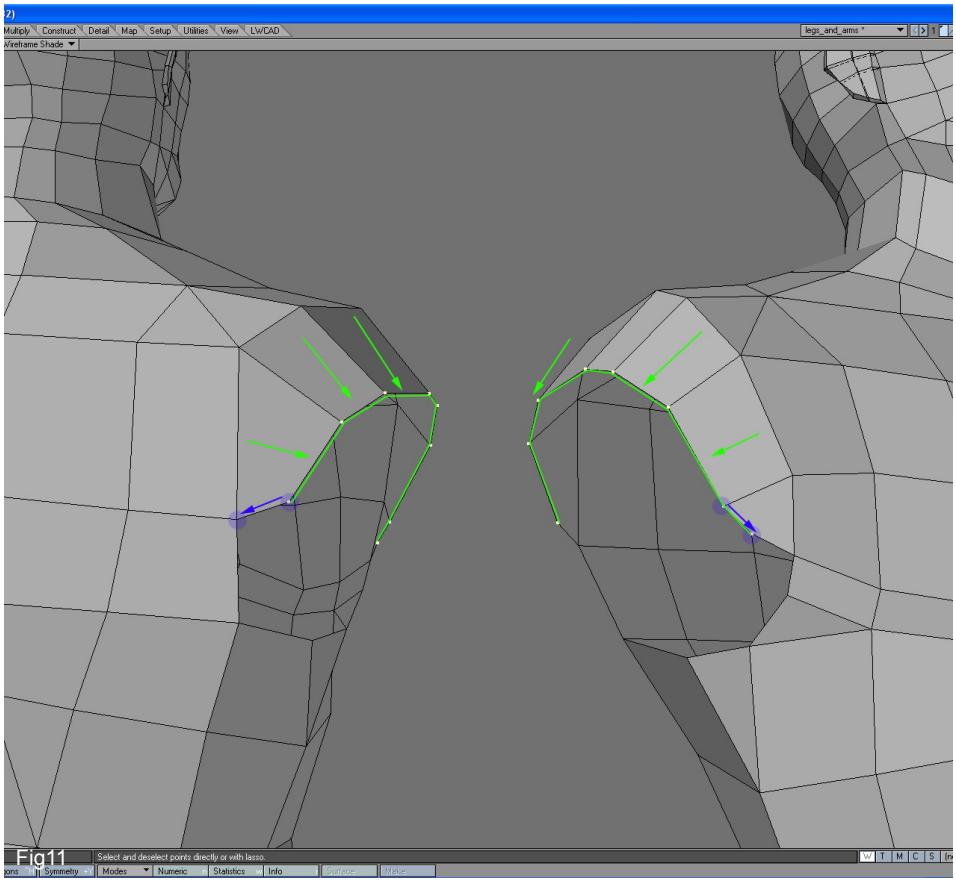


Fig11

11. Once the legs are finished, it's time to do the arms. Select 8 points, as in Fig 11 and extend them. Move them away and slightly rotate and rescale them. Weld two point pairs (marked blue in image).

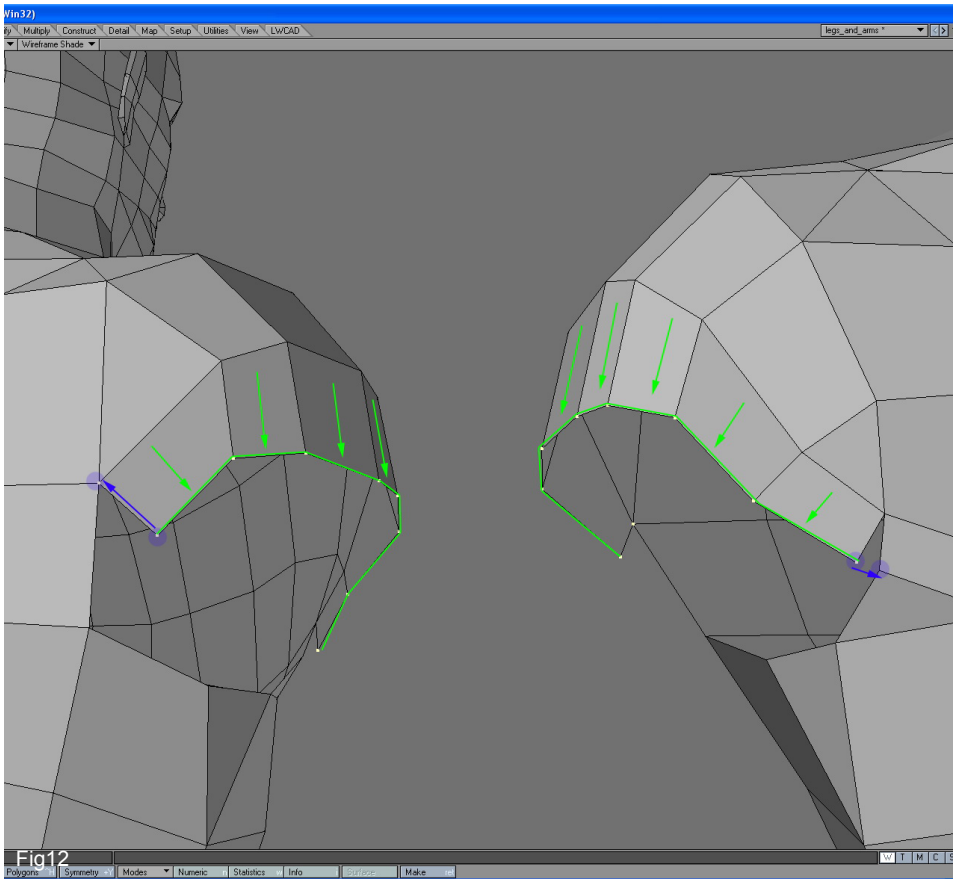


Fig12

12. Make another extension similar to the step above, and again weld the two end points on the back and front side.

13. Extend the line, shown by the green line in Fig 13, one more time and weld the two point pairs marked blue. Add a cut to the polygon above (marked by a red line) and, finally, merge these two triangles bellow into a quad. The final result is shown in the centre of the image.

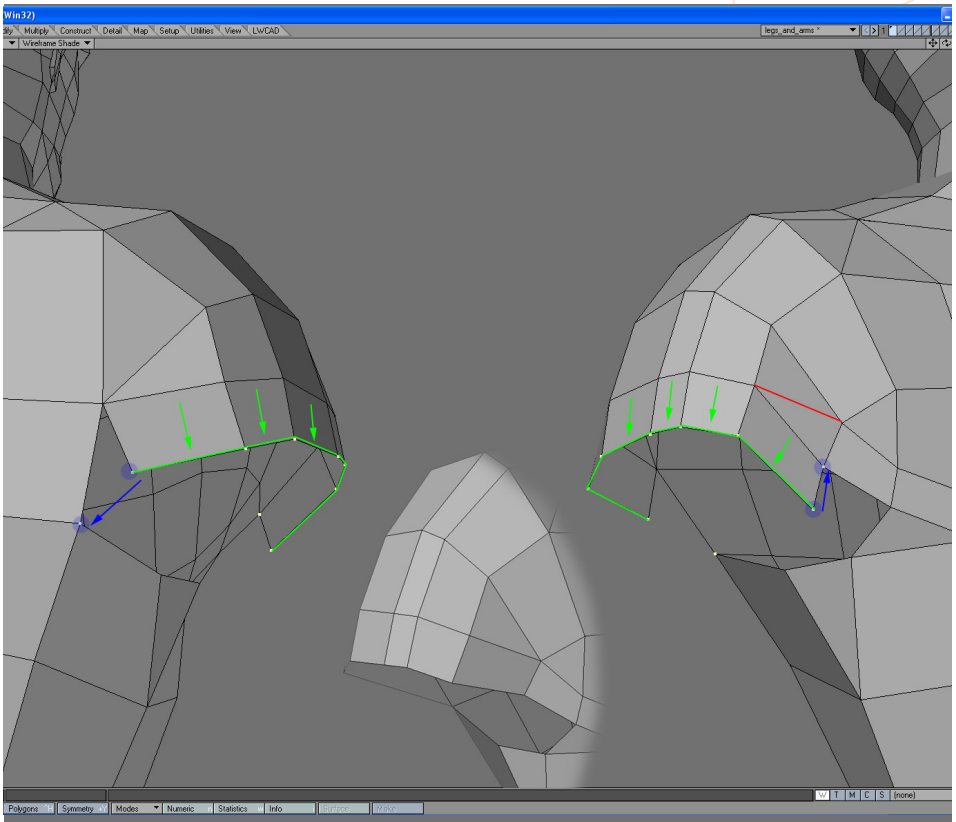
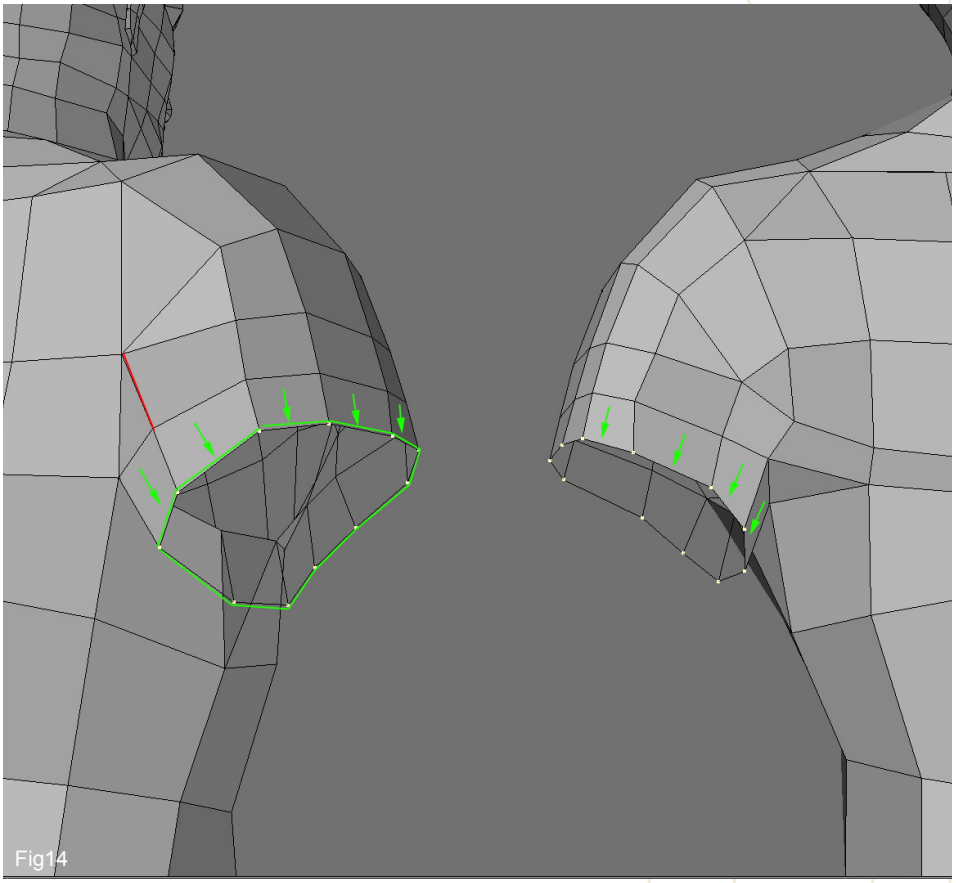
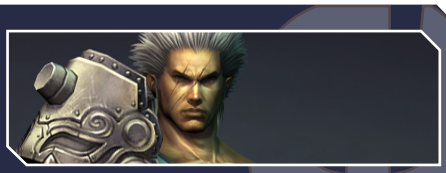


Fig13

14. Use the drag tool and reposition points to make a nice round shape for the arm. Make a cut in the polygon on the back side, marked by a red line in Fig 14. Then, extend the full loop of the arm base and readjust points where necessary.


Fig14



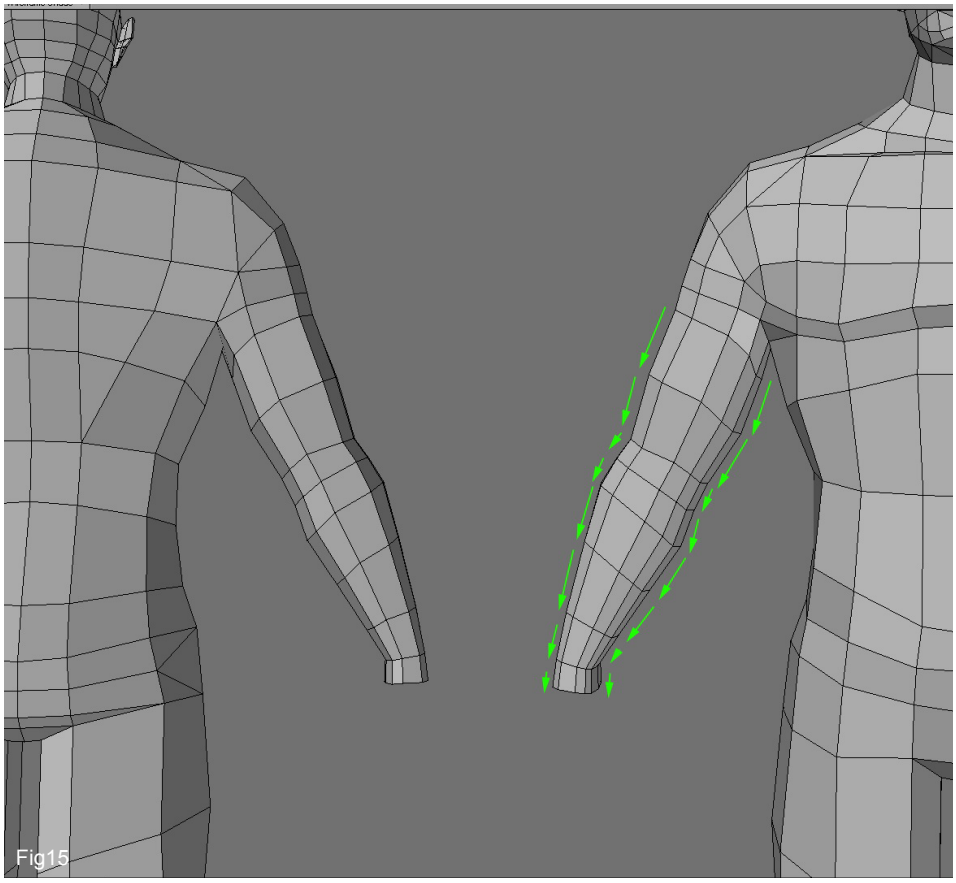


Fig15

15. Now continue extending until you get to the wrist, each time adjusting before new extension. As you can see there are 8 extensions.

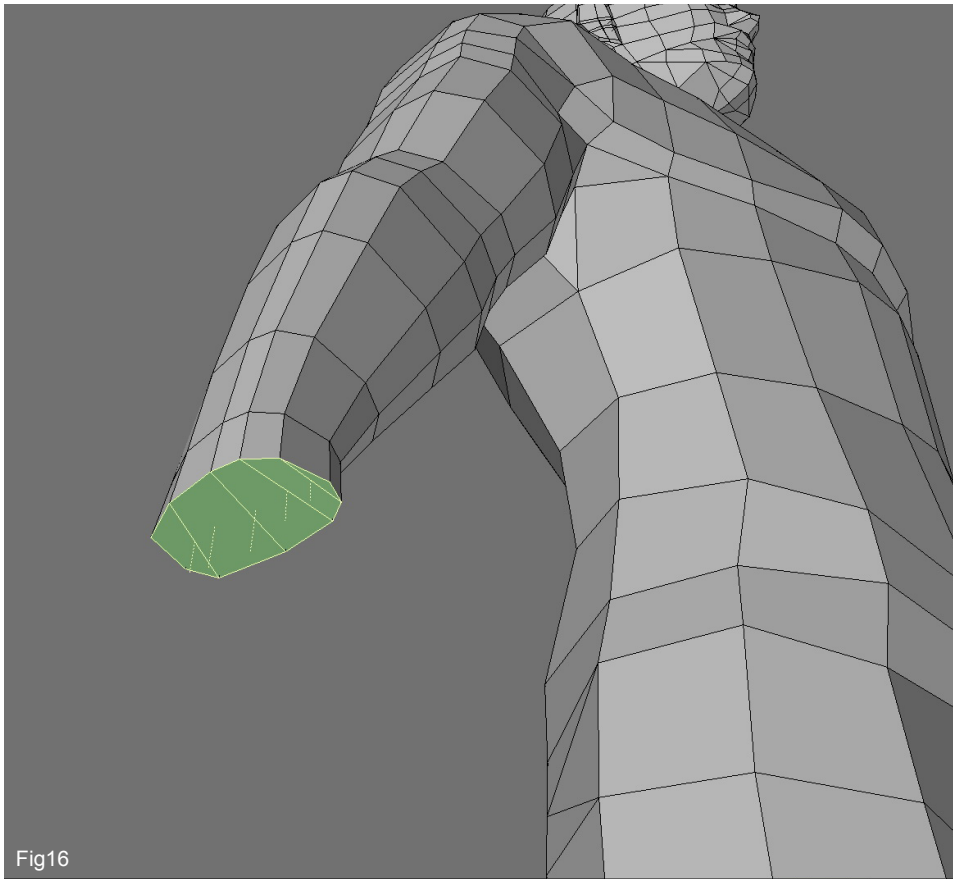


Fig16

16. Close the end loop of the arm by selecting points in a clockwise order (to make sure they are facing outward) and activating the Create polygon tool ("p").

17. Extend once more and adjust the points to make the root for the thumb.

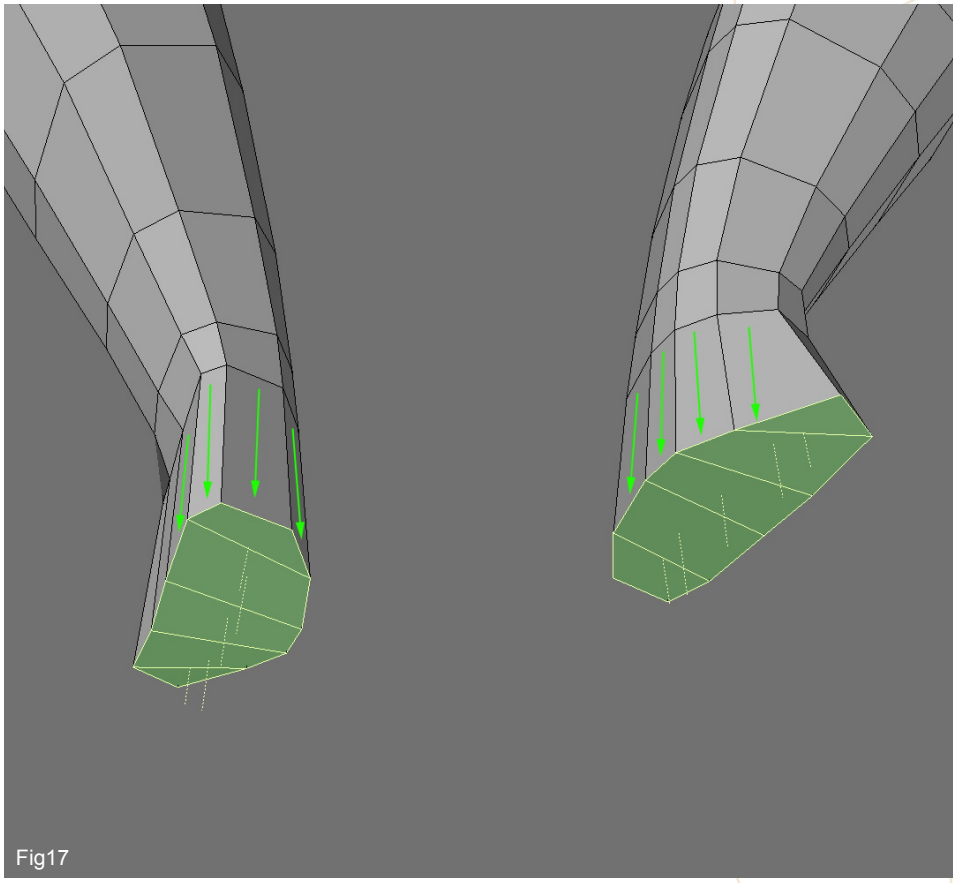


Fig17

18. Now it is essential for us to make some more geometry for the thumb base. So, select two polygons marked green and add, using Multiply-Subdivide-Add points, tool where it is marked with a blue dot (step 1). With both polygons still selected, switch to point selection mode and select 3 points marked blue (step 2.) and activate Multiply-Subdivide-Split tool. This will make a cut at the exact place where it is wanted. As we did earlier, again select two marked polygons (step 3) and add a point where it is marked by a blue dot. With the polygon still selected, switch to point selection mode and select two blue dots (step 4) and again use the Split tool to make a cut. Finally, drag to rearrange points to get more natural shape of the thumb base.

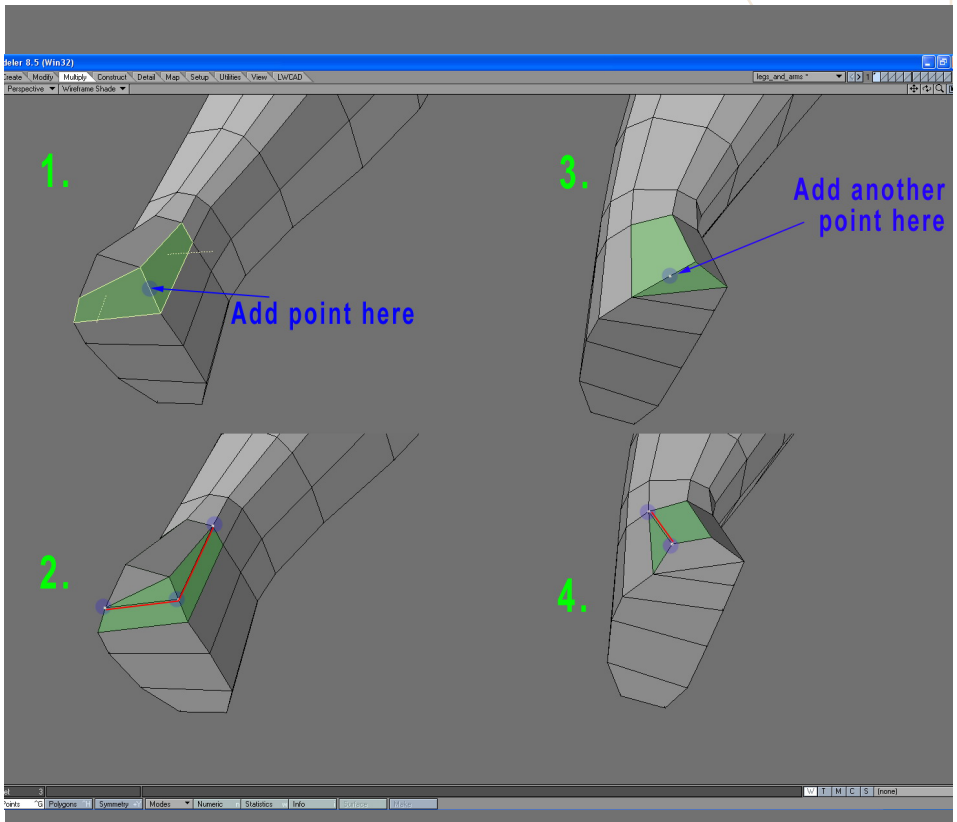
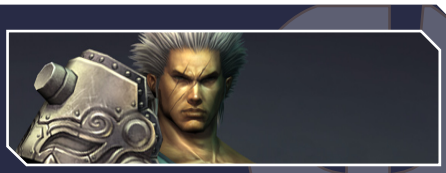


Fig18



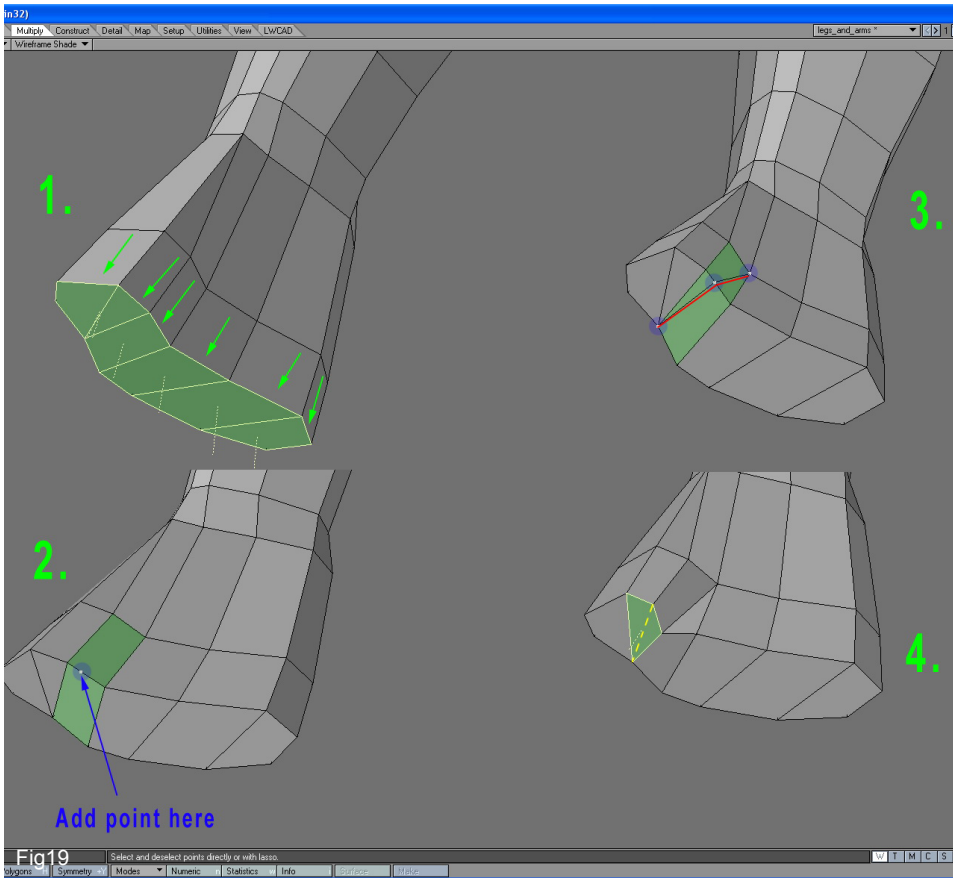


Fig19

19. This part is a bit tricky. What we need to do is to clearly separate the thumb base from the finger base. First, extend polygons marked green (step 1) once more and move them down a bit. Then select the two polygons green marked (step 2) and add a point where it is marked by the blue dot. Select 2 polygons marked green, switch to point selection mode and select 3 points marked blue (step 3), then activate the Split tool. Select the 2 triangles that remained on the bottom of the hand and merge them into a quad (step 4). The yellow line indicates where they where split. Drag to readjust the shape a bit.

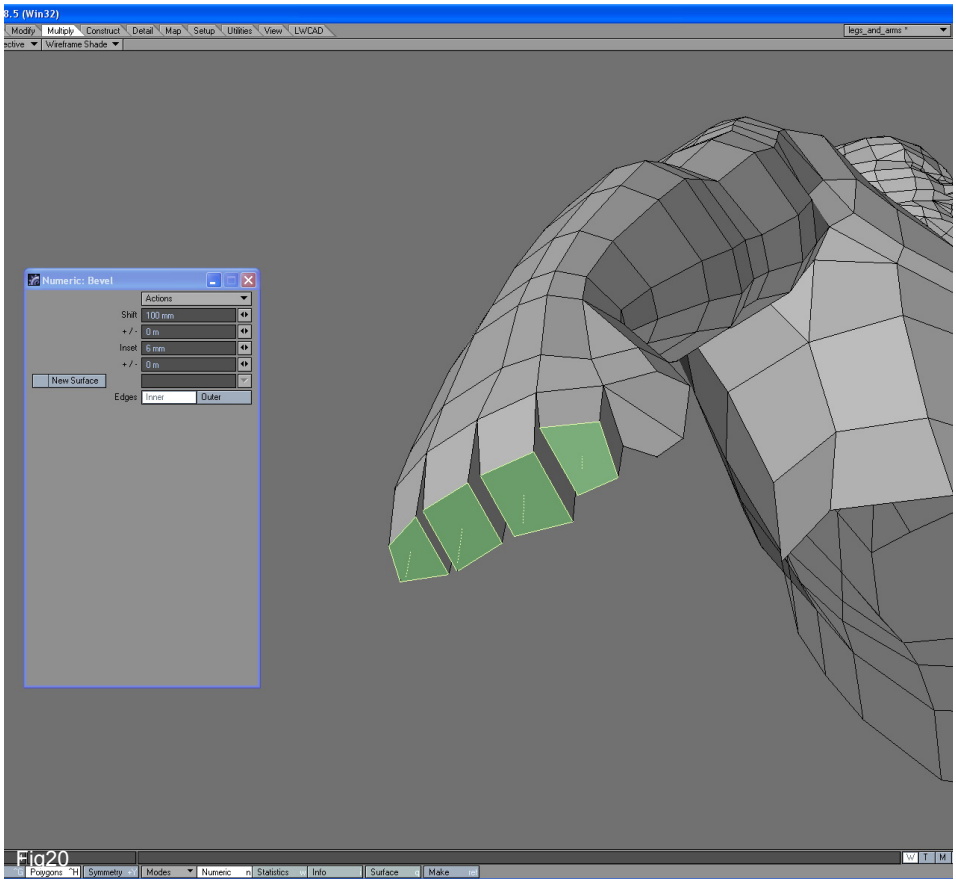


Fig20

20. Reshape the base of the fingers to get 4 polygons roughly the same size. Select these 4 polygons and bevel them down and in for a bit. This way we'll have 4 separate parts for fingers.

21. Continue extending finger polygons two more times, each time readjusting them to create a more anatomical shape.

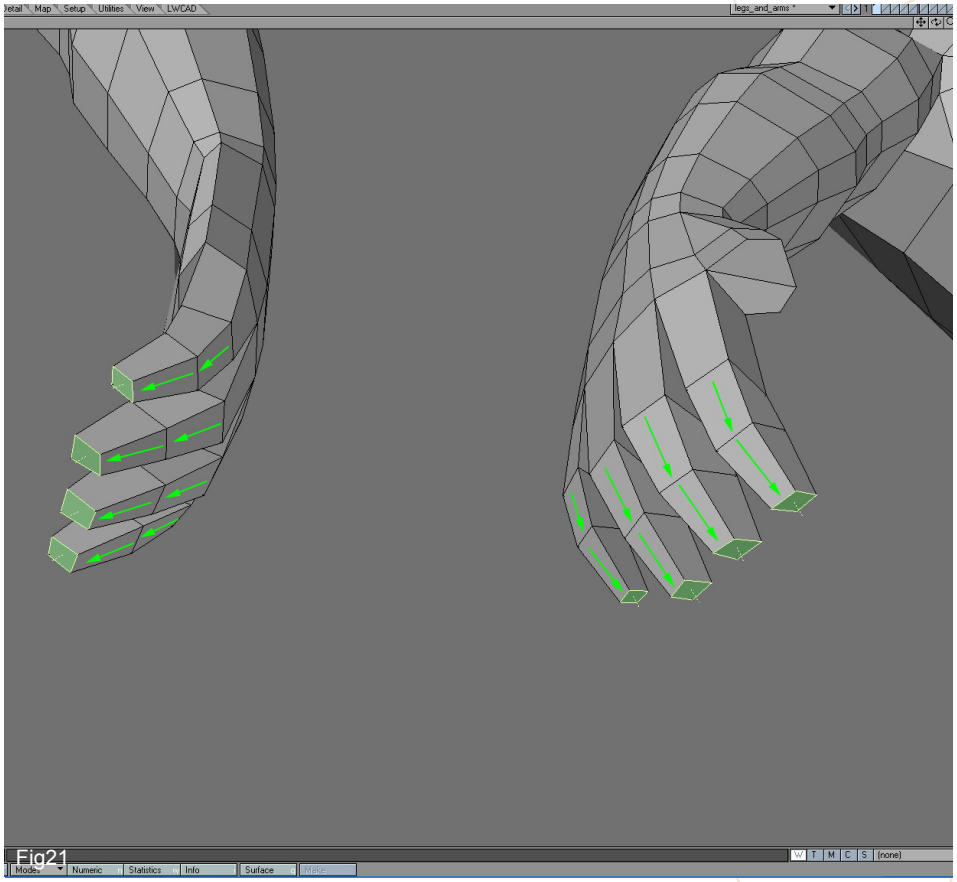


Fig21

22. Extend the thumb from the base that we created earlier (green marked polygons) and cut the red marked polygons where the line instructs.

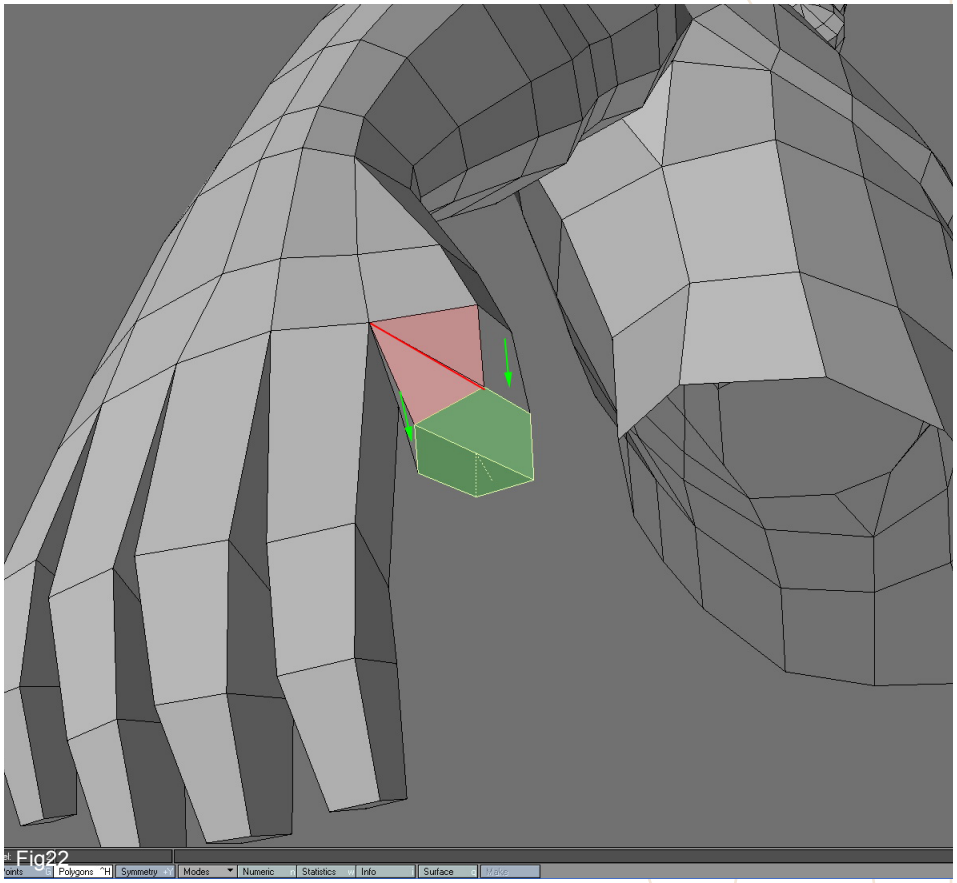
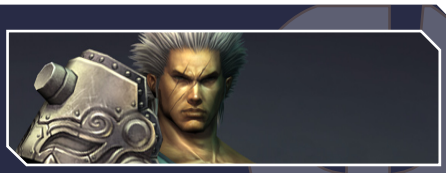


Fig22



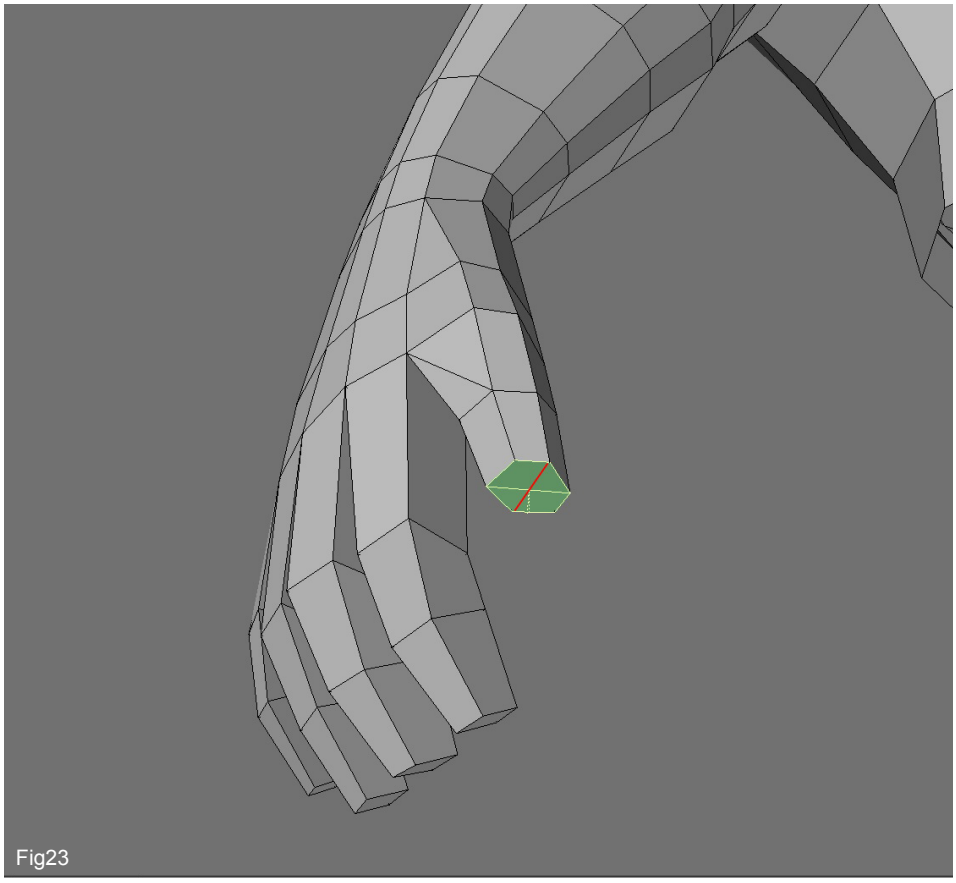


Fig23

23. Extend and adjust once more. Once you are done use Detail-Polygons-Spin Quads (Ctrl+k) twice to fix the orientation of the end polygons. The red line shows how they are supposed to be.

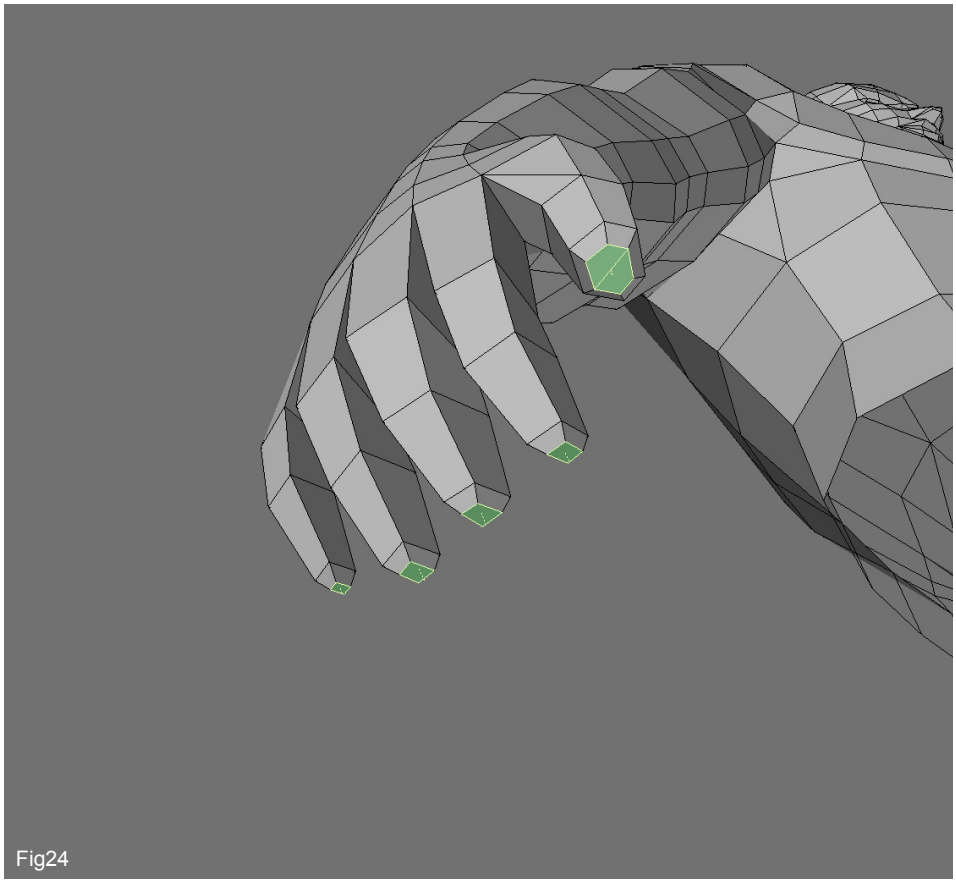
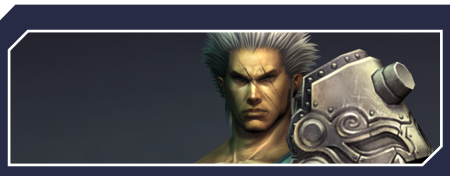
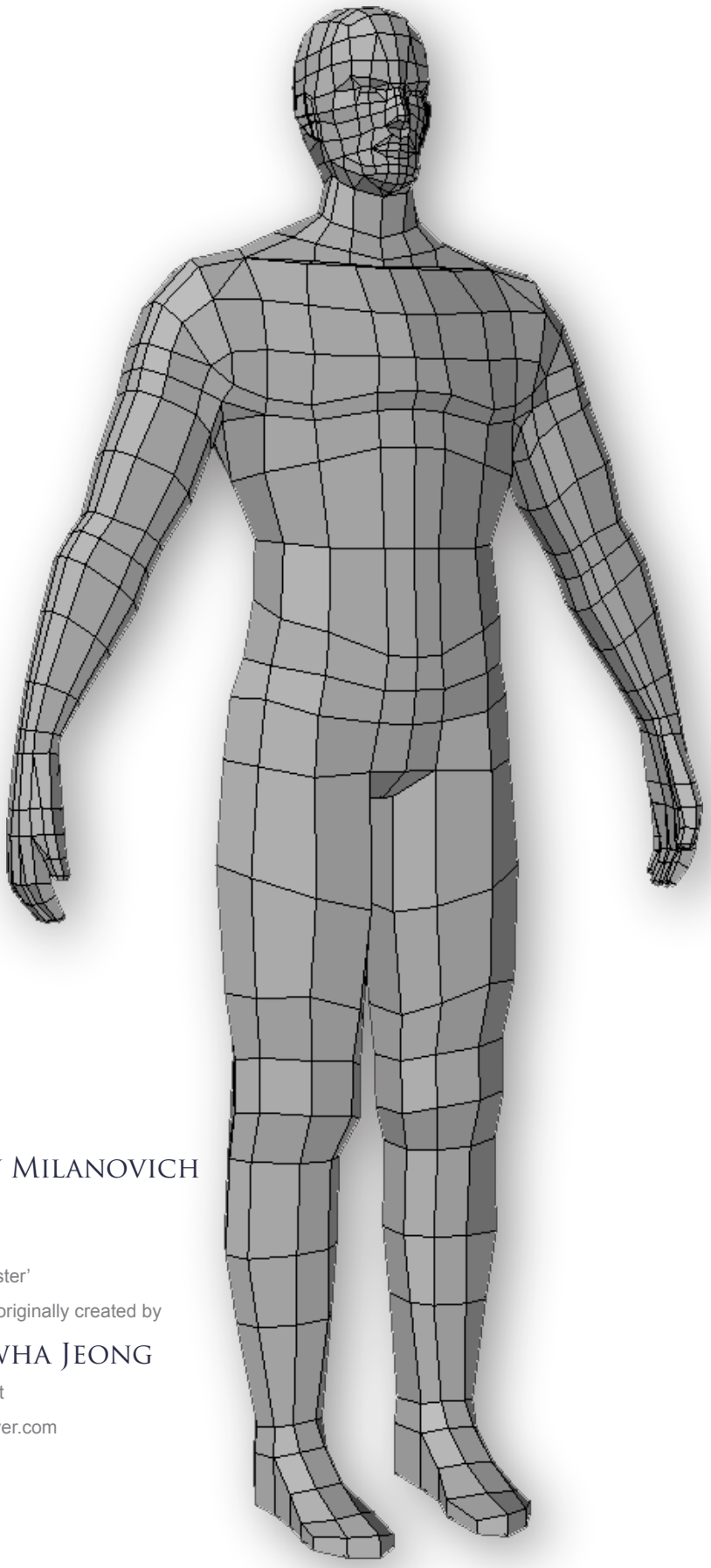


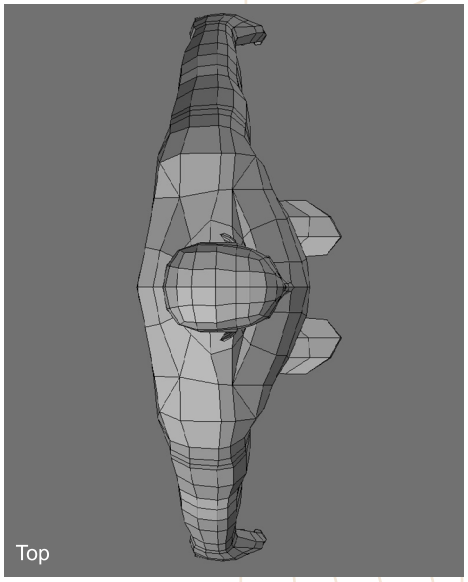
Fig24

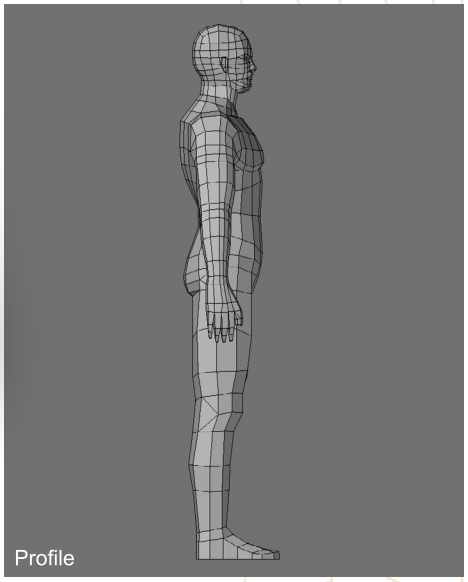
24. At the end, use Bevel to finish the tips of the fingers and Extender Plus tool for the thumb tip. We cannot use Bevel for the thumb tip because it will make split polygons. Select the polygons of the arm and mirror them along the X axis, then merge the joining points. If you notice there is anything wrong with seams or symmetry, you can always delete one half of the model, set the middle points to zero on the X axis and mirror to gain a symmetrical model. With this step, we finish the body model of the Swordmaster.

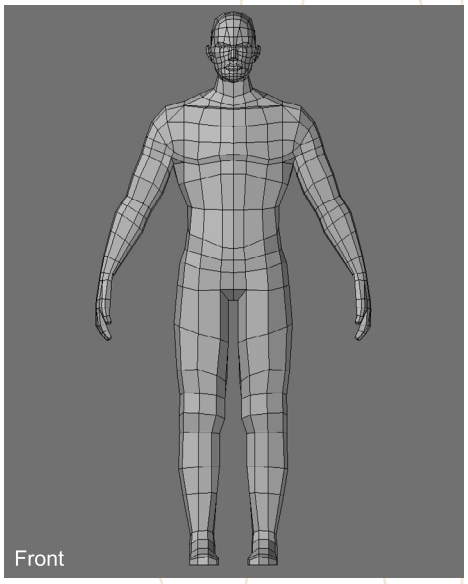
In next month's tutorial, we are going to create clothing and hair for the model...











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character was originally created by

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The Swordmaster

Maya

Is our new precise, step by step tutorial for a highly polished, low polygon game character with detailed texturing for real-time rendering. We have had the tutorial created for the 5 major 3d applications, but even if you are not a user of one of them, the principles should be easily followed in nearly all other 3d applications. Over the next 8 months we will outline in detail the process for creating the 'Swordmaster' you see on the left. The schedule for the different parts of the tutorial is as follows:

Issue 009 May 06

Modeling the Head

Issue 010 June 06

Modeling the Torso

Issue 011 July 06

Modeling the Arms & Legs

Issue 012 August 06

Modeling the Clothing & Hair

Issue 013 September 06

Modeling the Armour

Issue 014 October 06

Mapping & Unwrapping

Issue 015 November 06

Texturing the Skin & Body

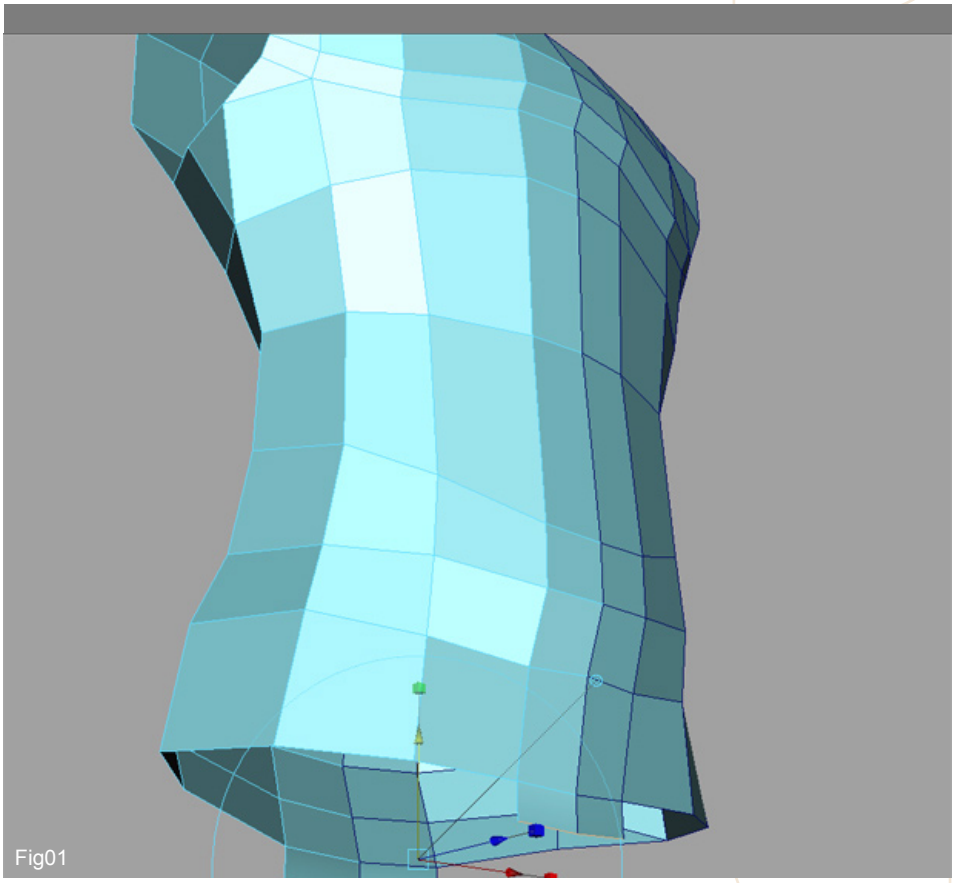
Issue 016 December 06

Texturing the Armour & Clothing

Enjoy ...

Part three
Modeling the arms & legs

1. Open the old scene containing the Swordmaster's body. Select the edge from the front and the edge from the back, as in Fig01, and extrude them downward a little bit. While the extrude cursor is still active, scale them inside in order to bring them closer. We intend to unify the back and the front with a surface crossing between the legs.


Fig01

2. Now we'll stitch them by grabbing one edge (front or back, it doesn't really matter) and by extruding it towards the other one. Arrange the verts to be in the same position and use the "Merge Vertices" tool to collapse them. Then move the vertices to get a narrow surface between the legs, as in Fig02. We have now two holes from where we can start building the legs.

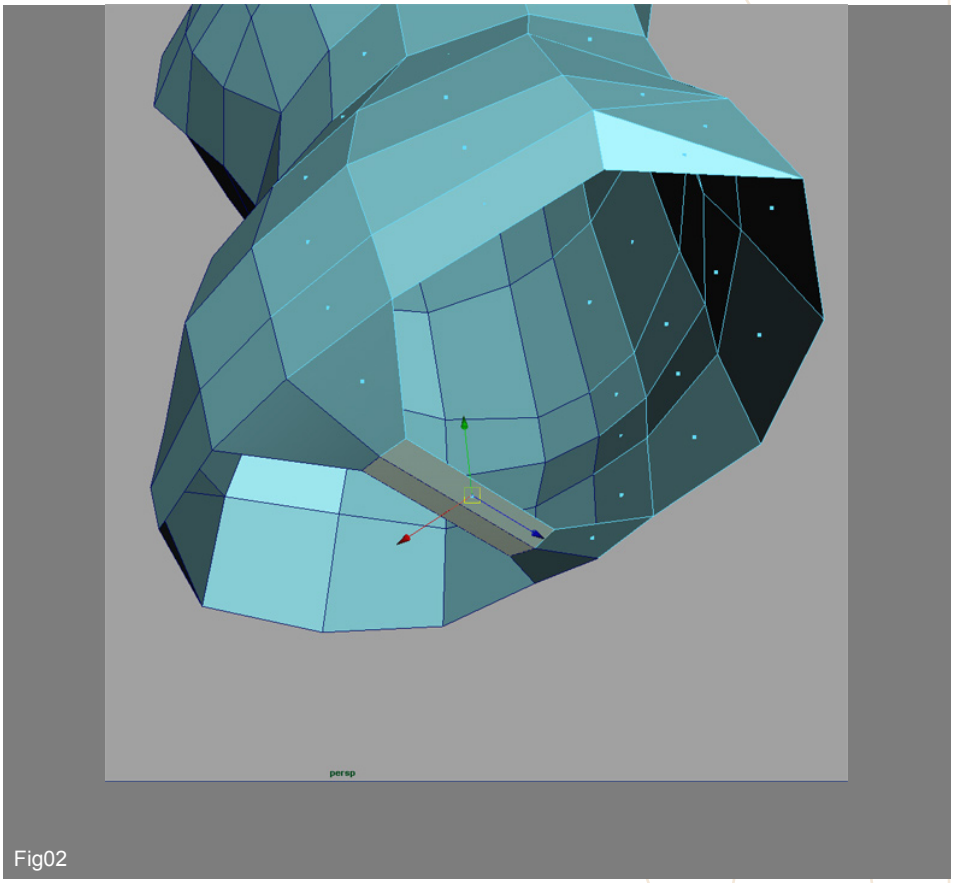
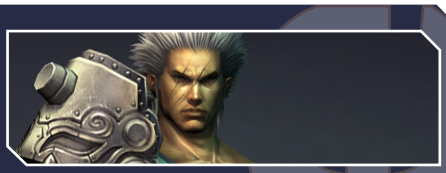


Fig02



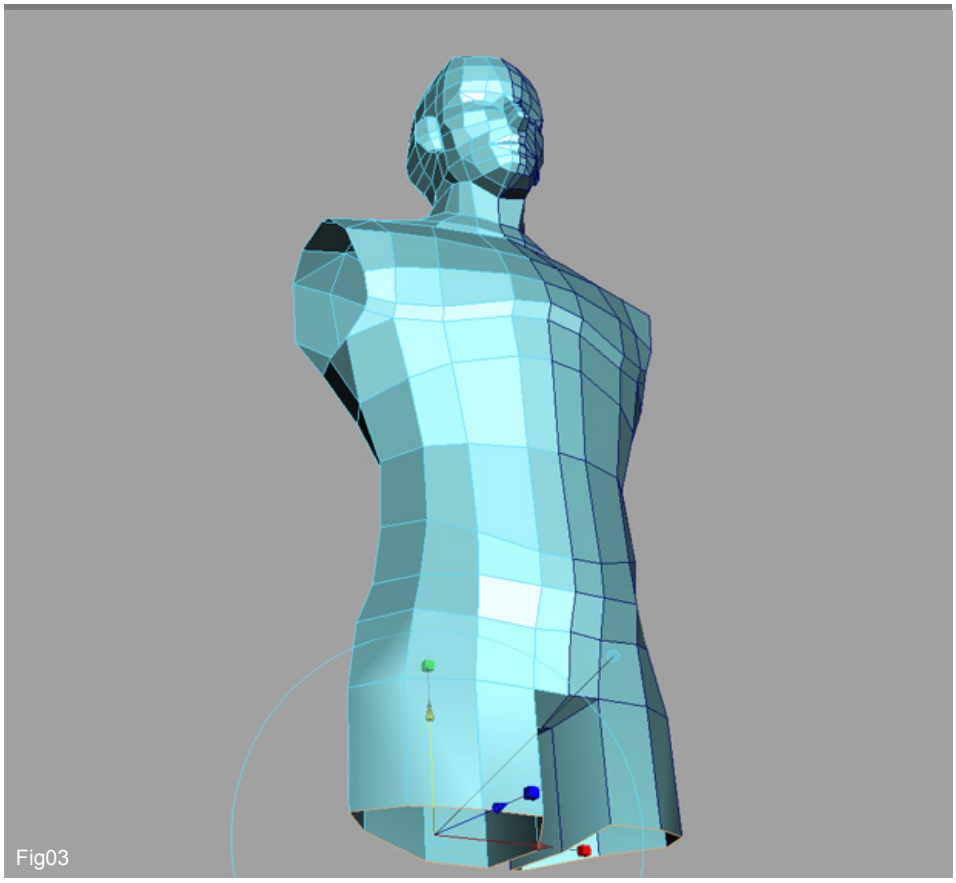


Fig03

3. Extrude the edge downward using “Extrude edge” tool and rearrange the vertices to have a nice shape for the legs (Fig03).

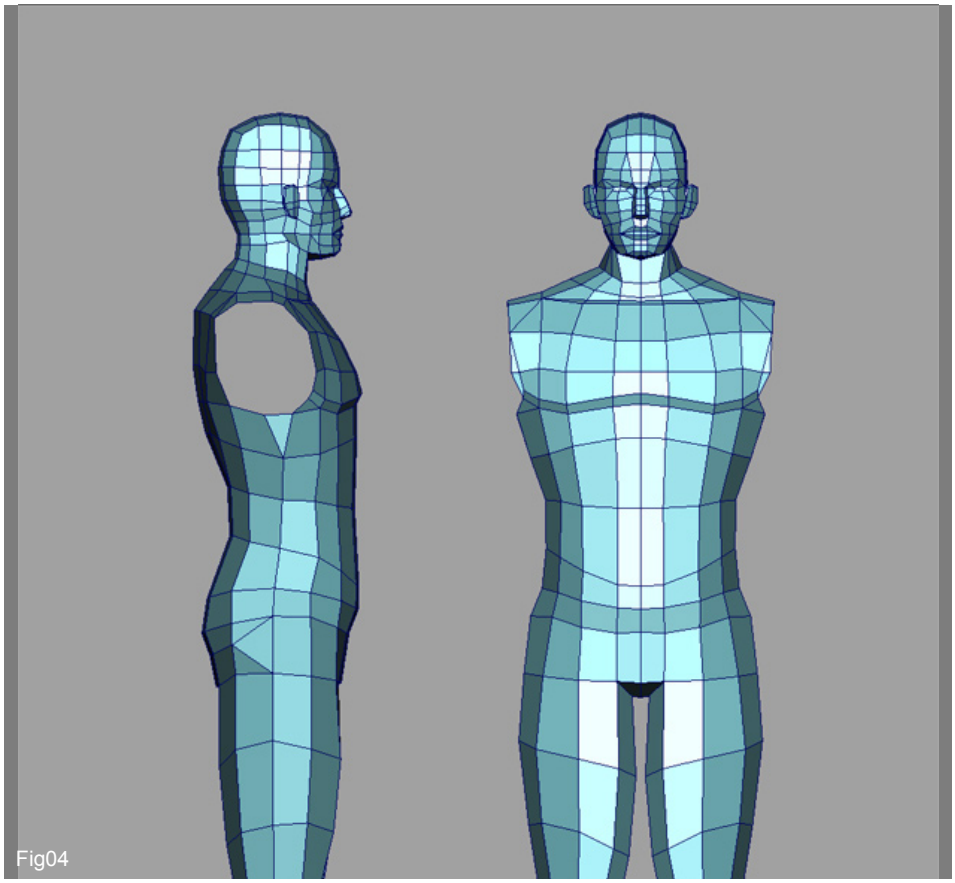


Fig04

4. Now extrude two more times the edge downward and reposition the vertices for a better definition of the legs (Fig04).

5. Using the same technique extrude the edge downward in order to define the knees, calves and the ankles. We've added 6 more edges. Every one of them was shaped in accordance to the form we wanted to define (i.e. knee, calve and ankle Fig05).

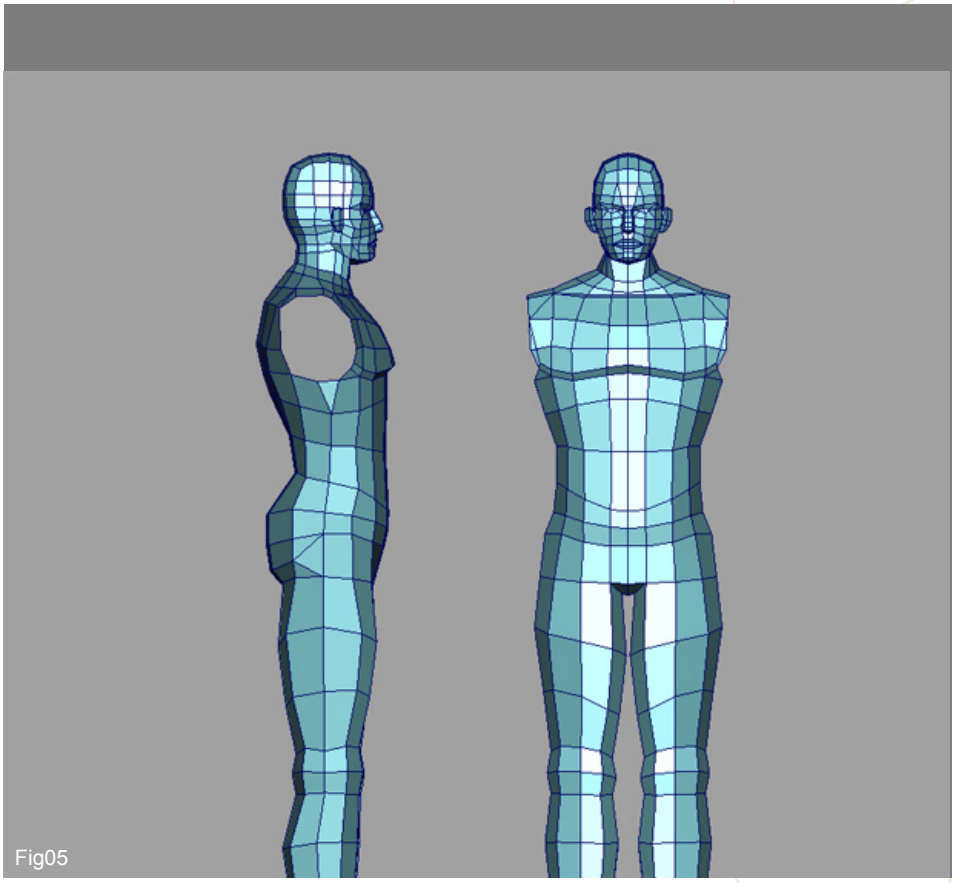


Fig05

6. Now, once we've finished building the leg, we'll go further to start creating the foot. First we have to close the hole. You may choose different ways. I choose a simple one: "Edit Polygons>Fill Hole". Then I add two more edges, as shown in Fig06.

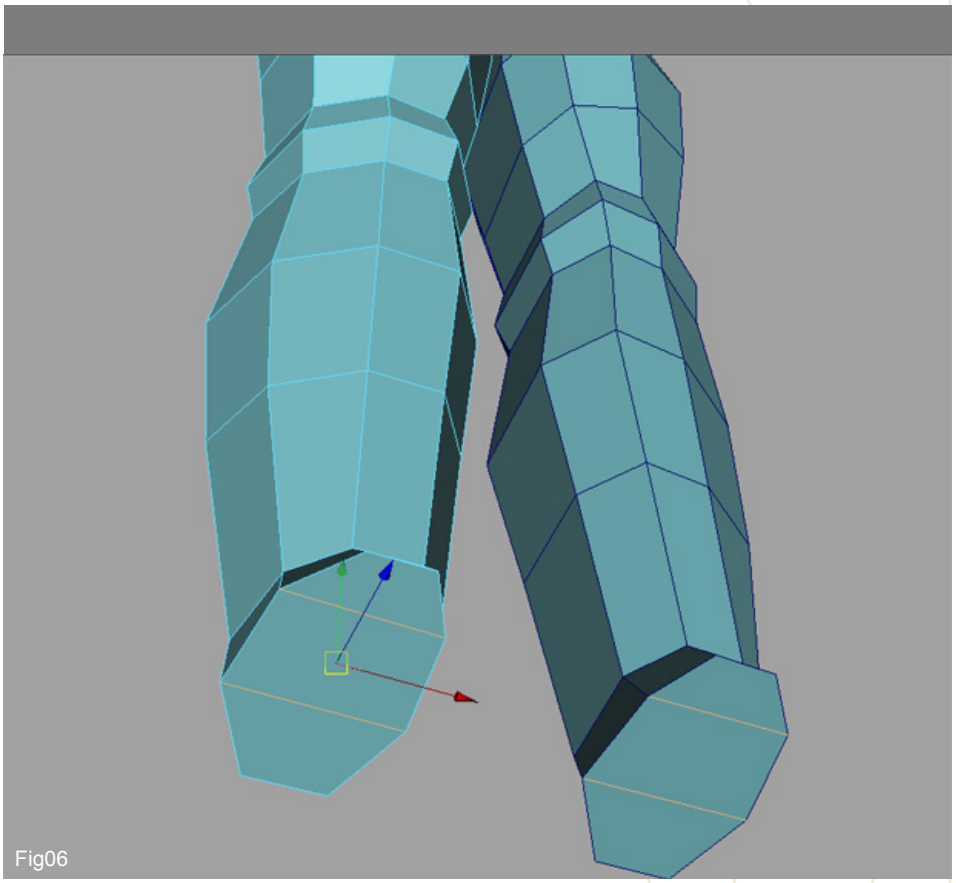
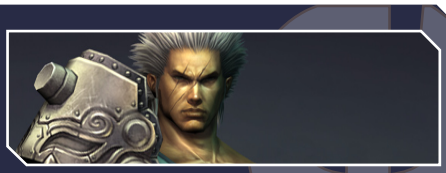


Fig06



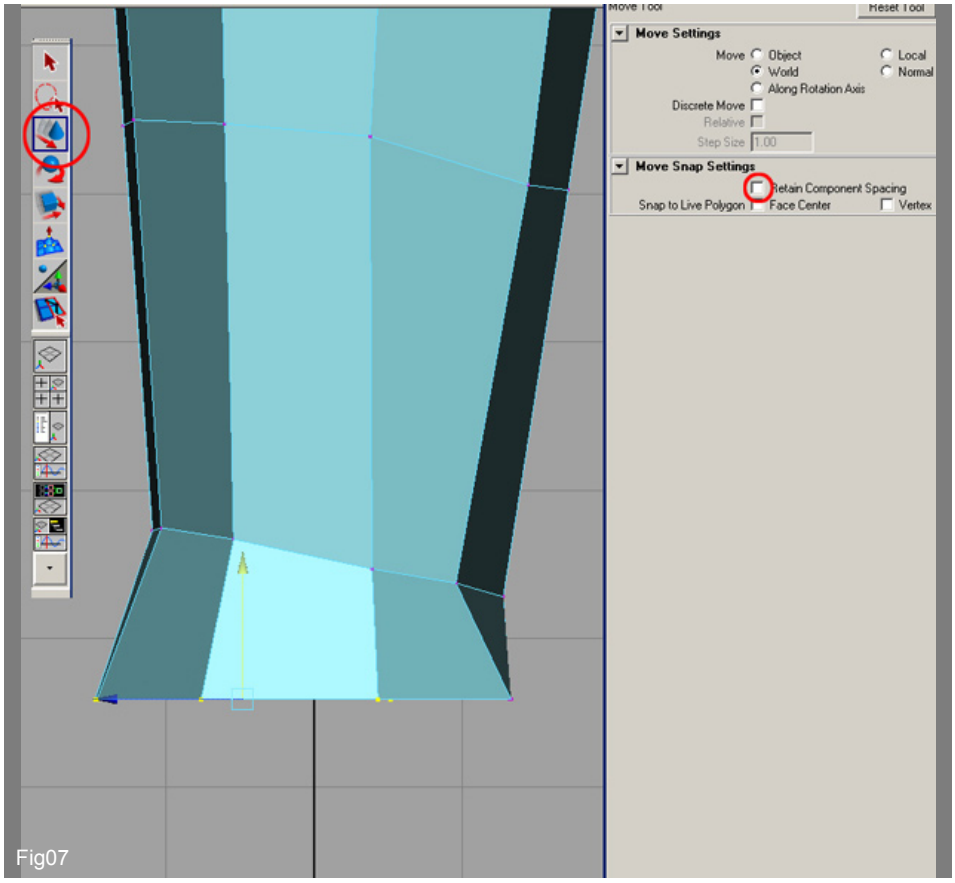
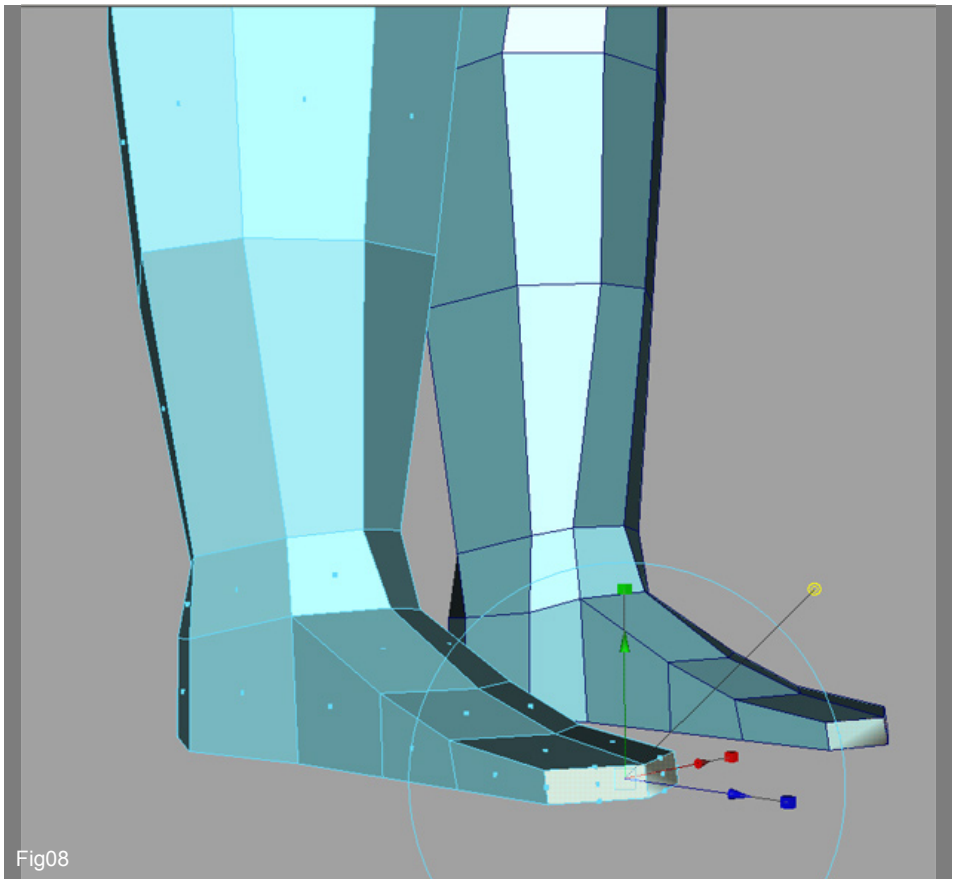


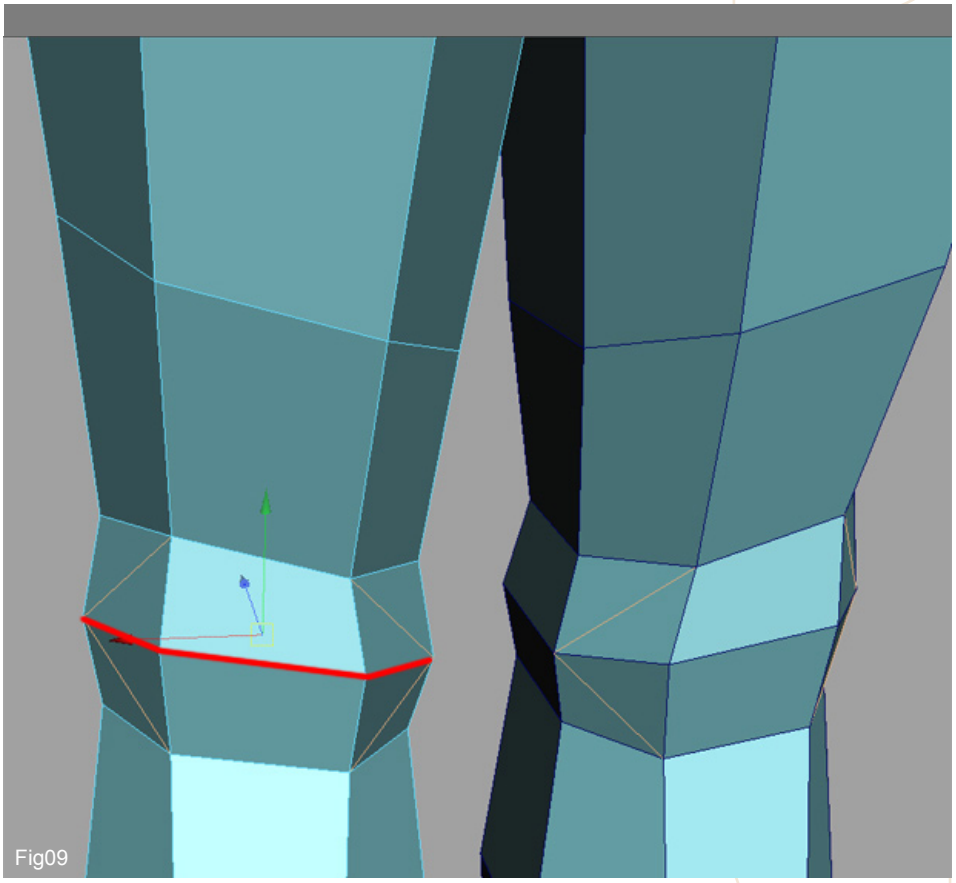
Fig07

7. We're going to align all the vertices horizontally. Double click on "Move Tool" from the "Tool Box" and make sure you un-check "Retain Component Spacing" shown in Fig07. Then select all the verts from the foot, except the lower one, and move them downward by keeping the "v" key pushed down while you drag, in order to snap the verts to the point. They all should be aligned now.

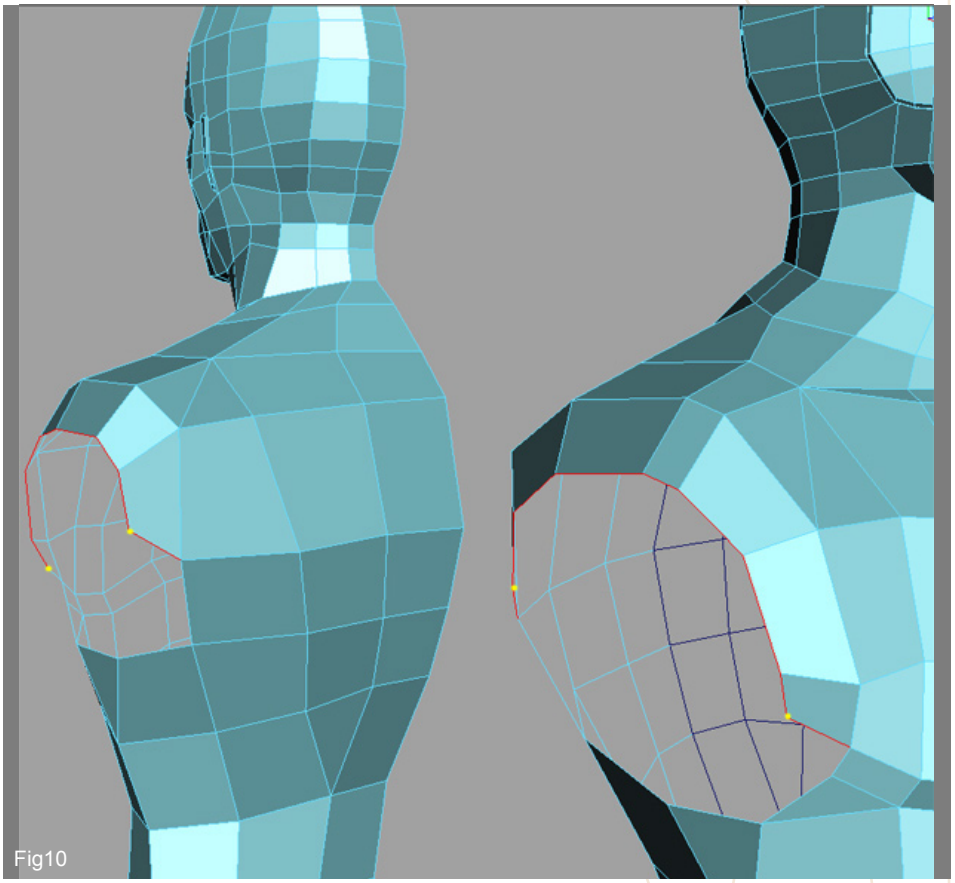

Fig08

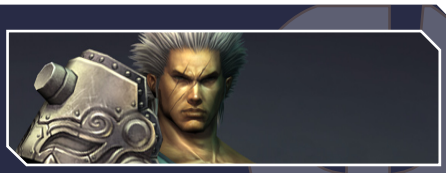
8. Select the two front faces and extrude a them few times to form the foot. (Fig08).

9. Before moving on to the arms, we have to add few more details to the knee. That's because the surface, as it is right know, is not properly set for deformations during the animation. We're going to add two more edges, as shown in Fig09. Also now delete the red edge.


Fig09

10. We can start the arms now. Select the top seven edges and extrude them, as in image Fig10. Then delete the yellow vertices by selecting them and pressing the "Delete" key


Fig10



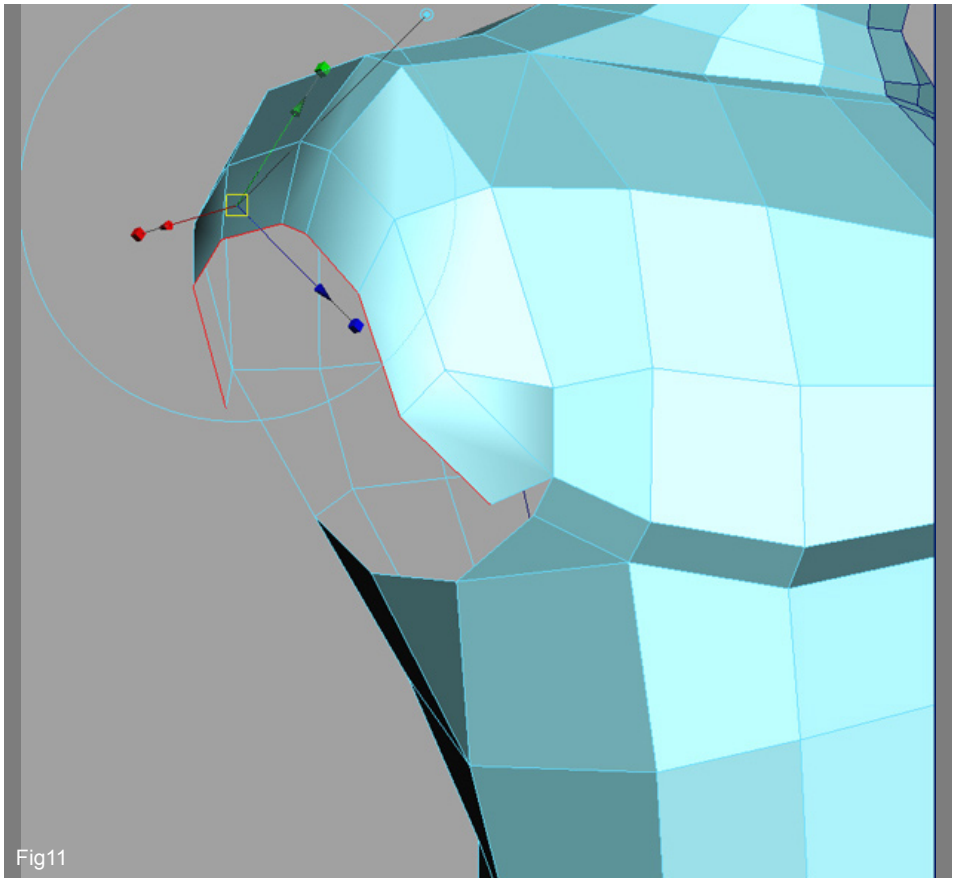


Fig11

11. Select again the seven edges and extrude them once again. (Fig11)

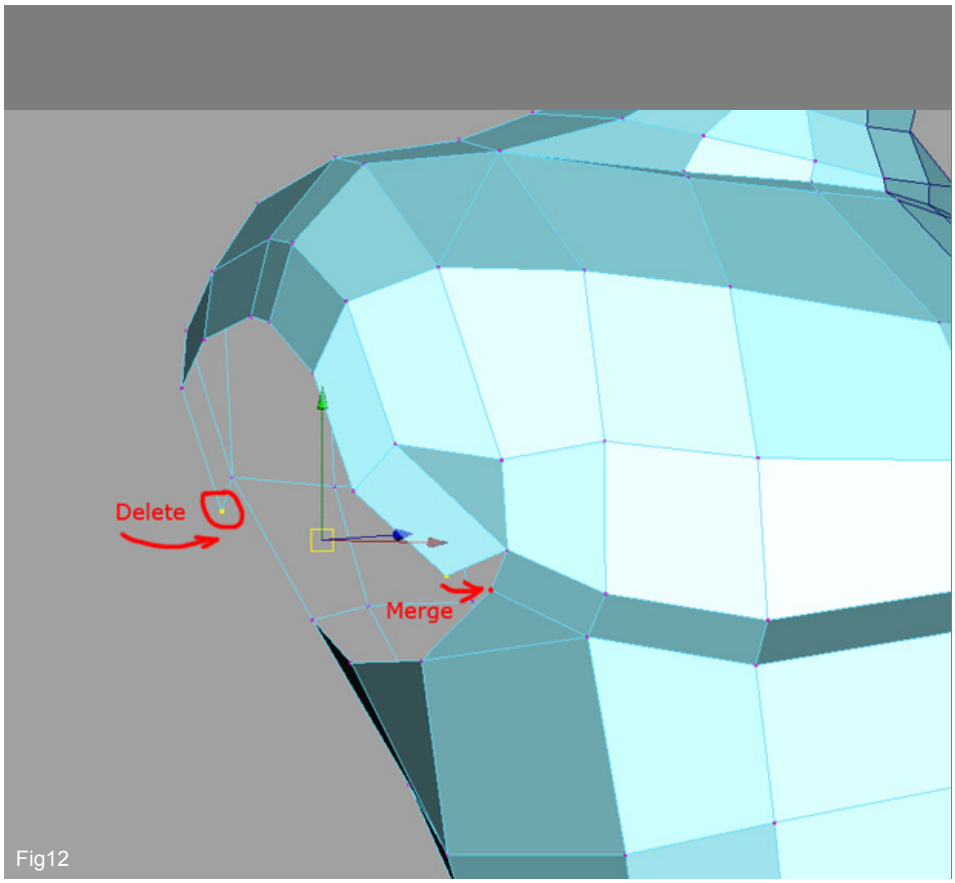


Fig12

12. Select the vertex from the back and “Delete” it, then move the one from the front over the red one, and weld them together by using “Merge Vertices” (Fig12)

13. Now select only 6 edges (the red edges shown in Fig13). Extrude them and delete the yellow vert from the front and merge the one from the back.

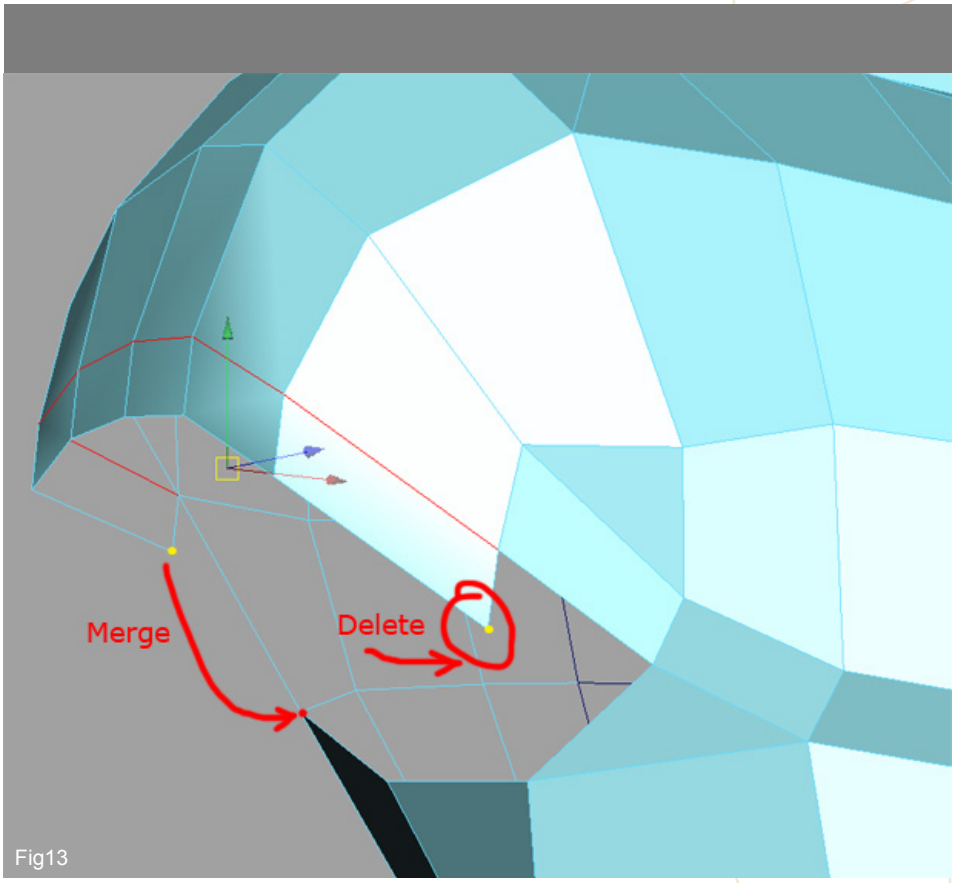


Fig13

14. After the previous step, you should now have a body as it is shown in Fig14. Now add a new edge using, the “Edit Polygons > Split Polygons Tool”, the same as the one in green and “Delete” the edge in red. We are remaking the pparameterization of the object, in order to start building the arm. Also, now add another edge onto the back side of the arm (see Fig14).

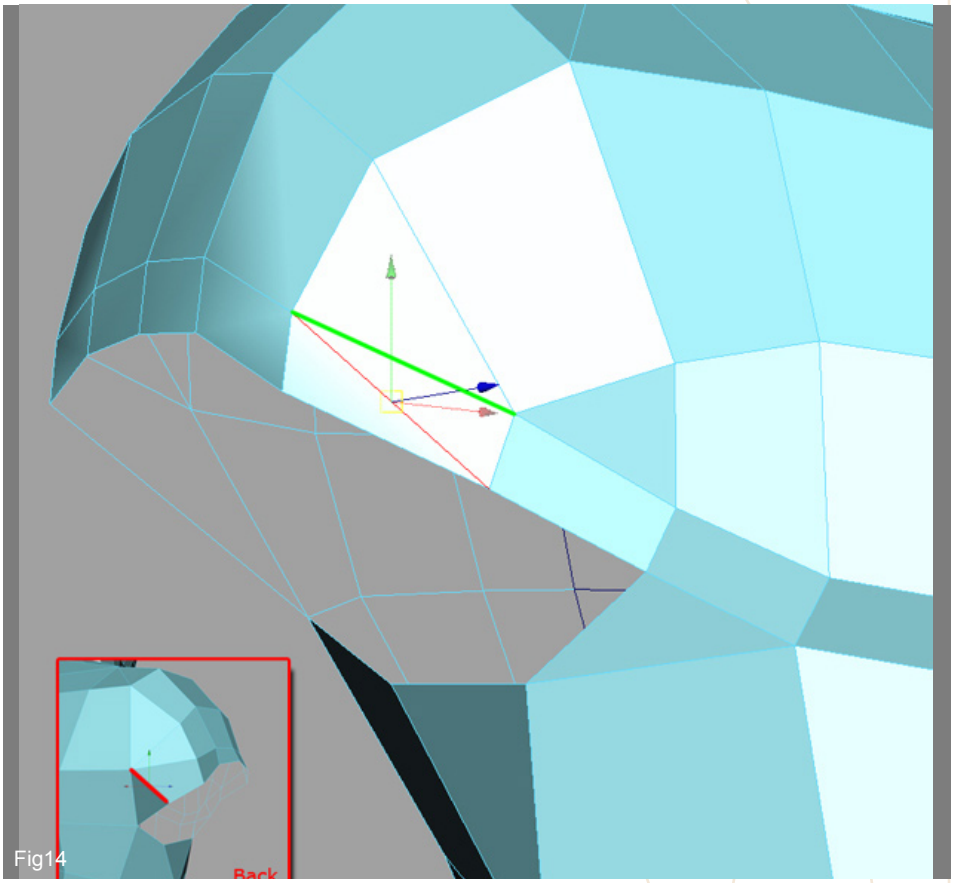
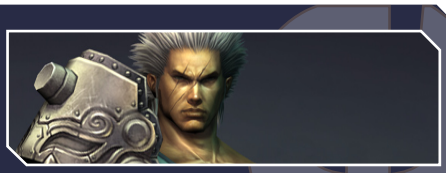


Fig14



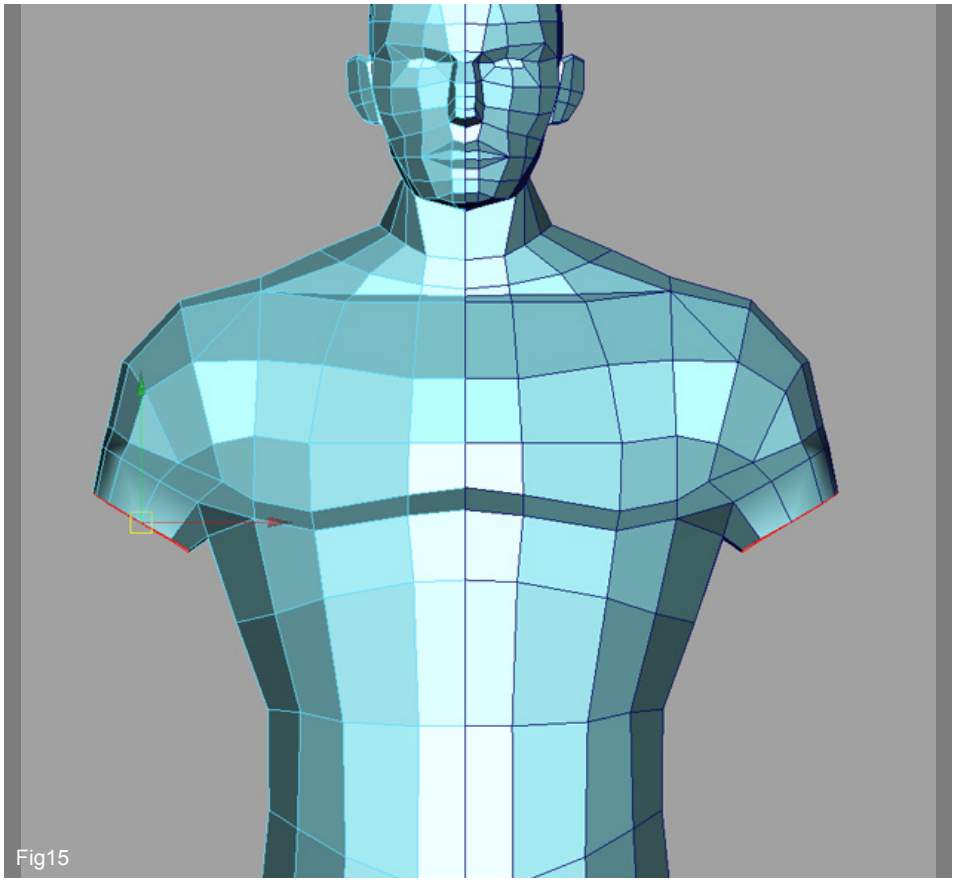


Fig15

15. Now select the whole ring of edges and extrude it downward. Fig15

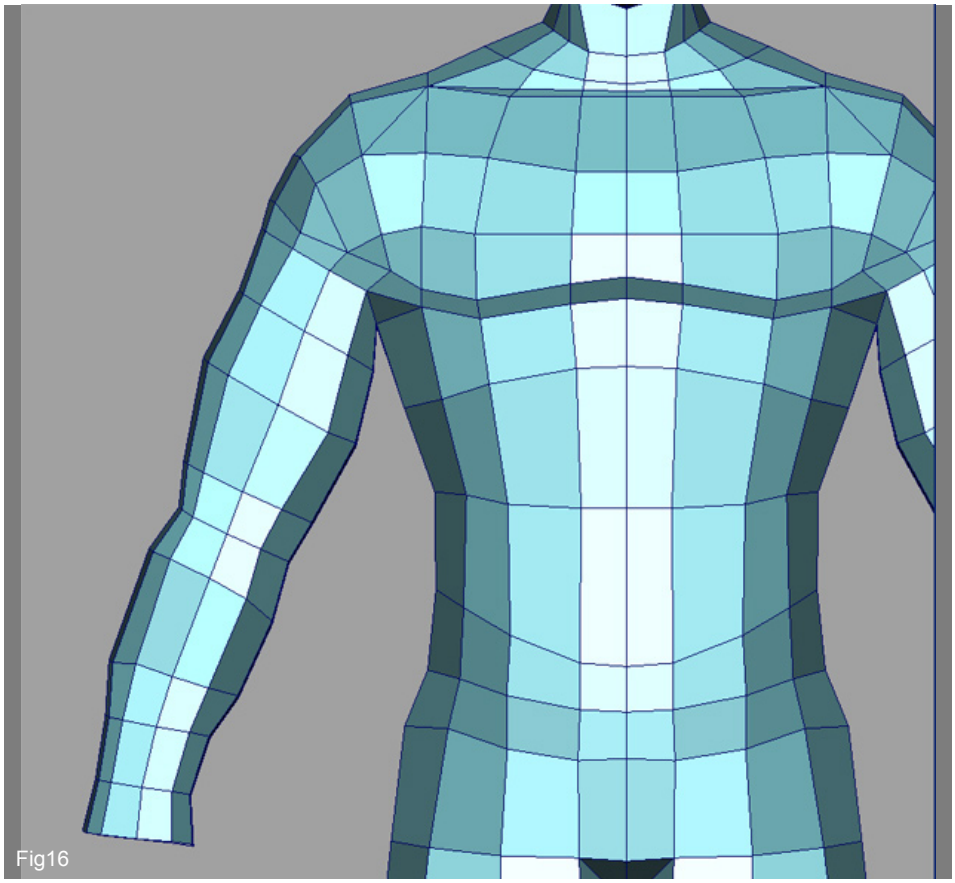


Fig16

16. Extrude the whole ring of edges a few times and reshape the arm until you get something that looks close to Fig16. One thing is for sure: always rearrange the verts in order to have a nice shape!

17. As we did for the foot we're going to fill the hole using the "Fill hole" tool (Fig17). Also, don't forget to add 4 more edges using the "Split Polygon Toll" for next step - building the palm.

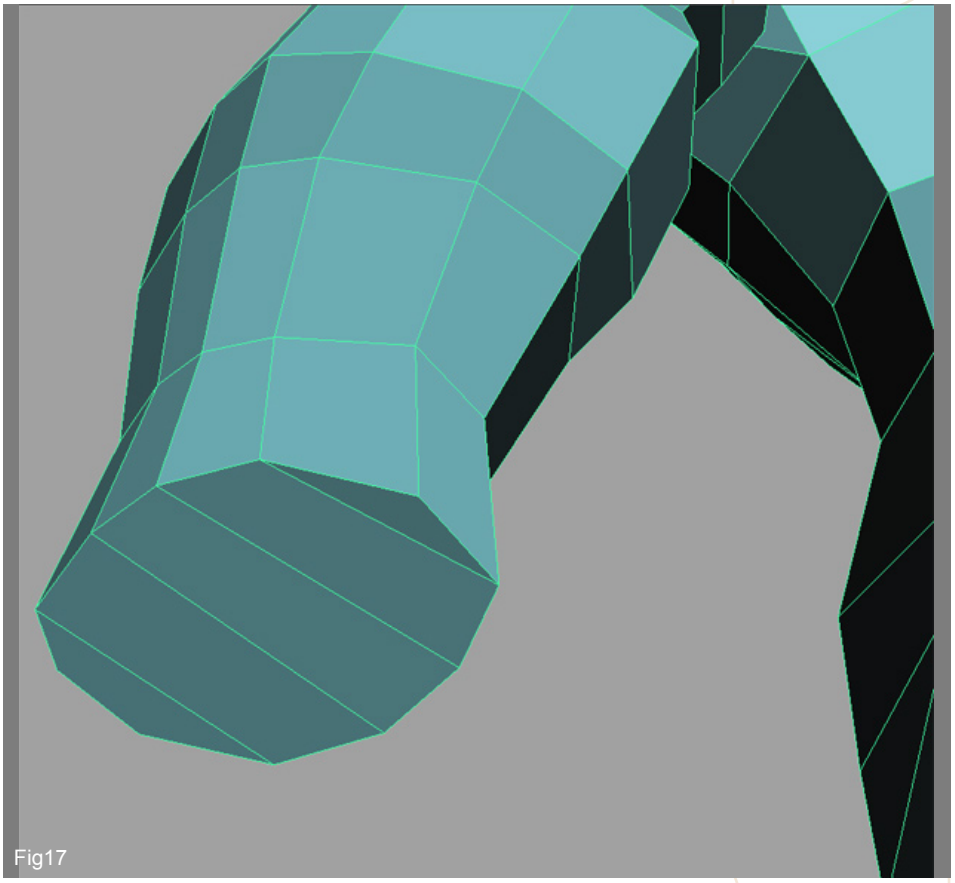


Fig17

18. In order to define the thumb we have to make some new splits. We're going to add 3 more edges (Fig18).

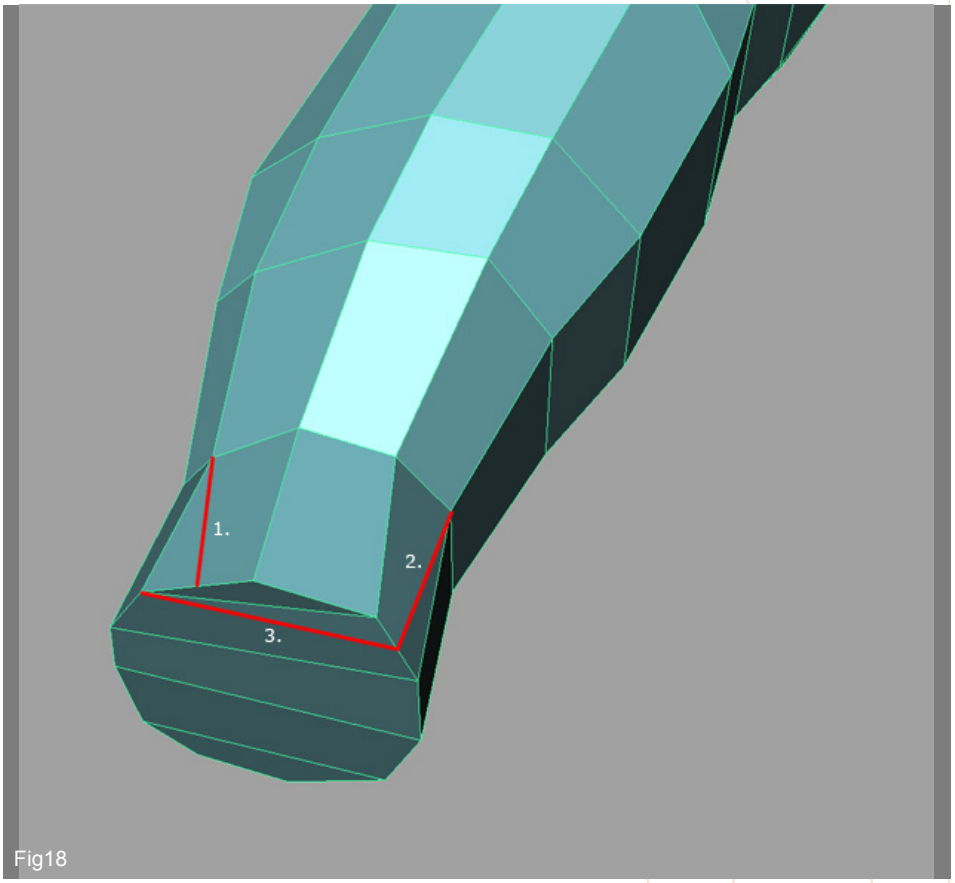
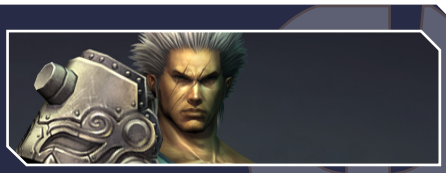


Fig18



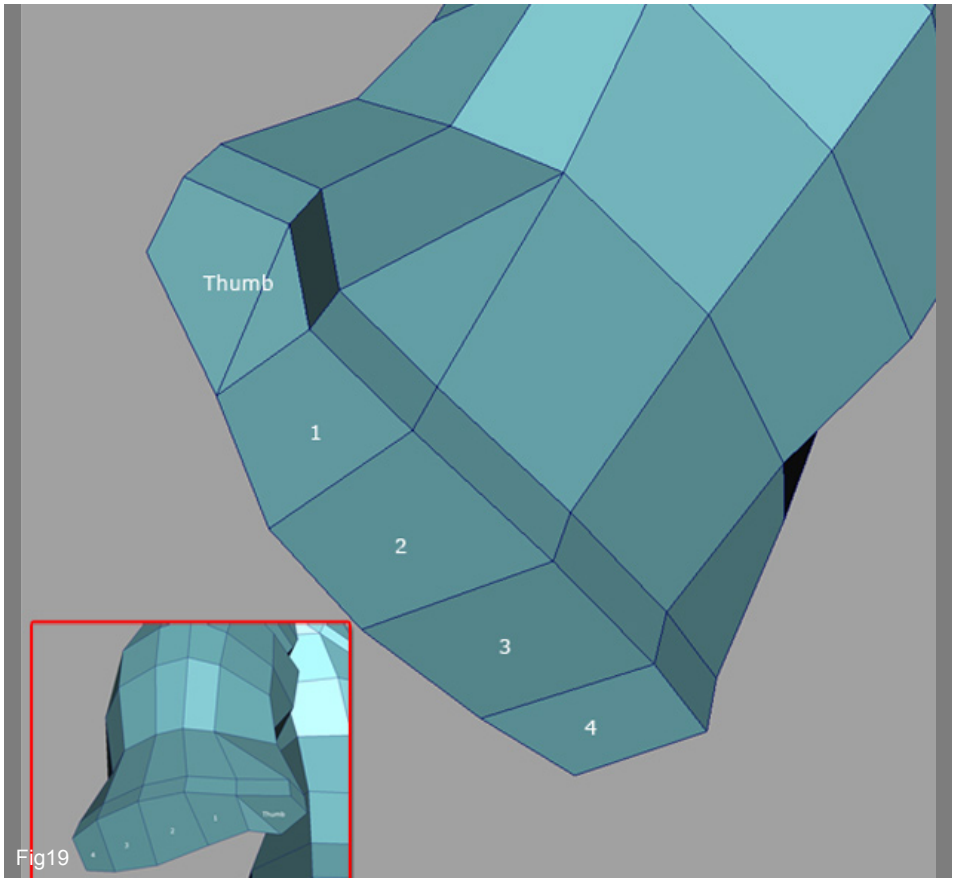


Fig19

Rearrange the verts to get a proper form for the palm, fingers and the thumb (Fig19), then extrude all of the faces from the palm downwards, once.

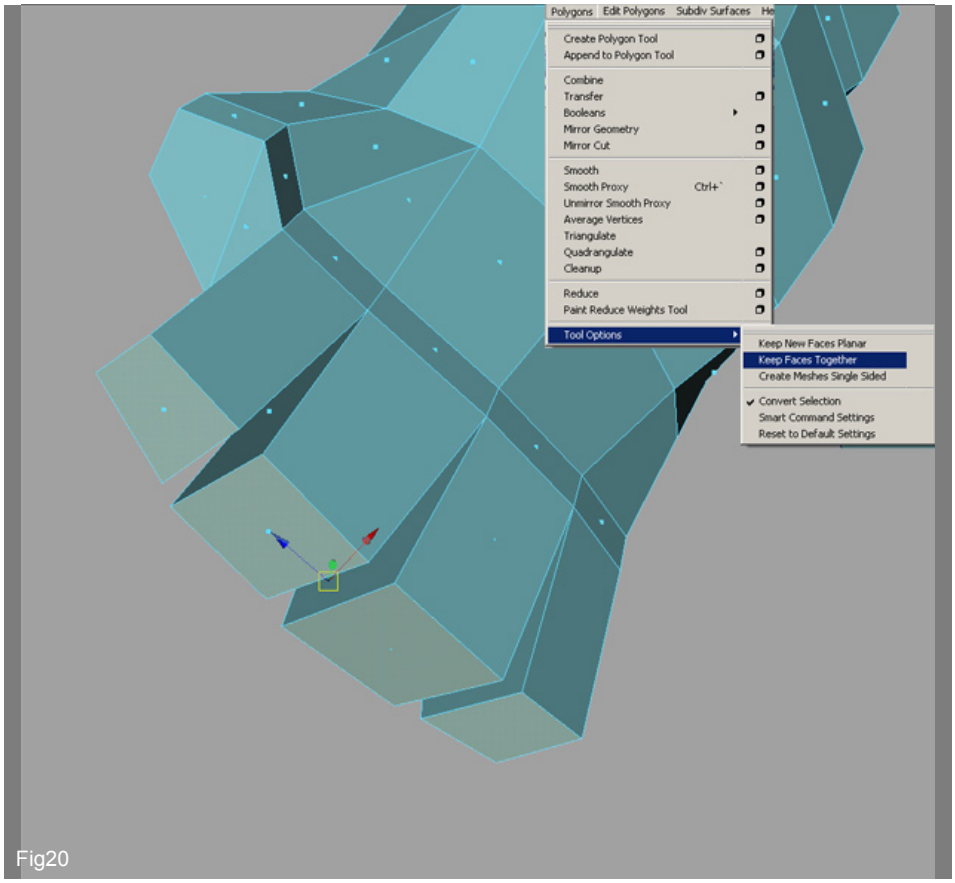


Fig20

19. Now we can start extruding the fingers. Before doing this, be sure that you've unchecked "Polygons>Tool options>Keep Faces Together". This way you are going to split into, two every common polygon from between the fingers. (Fig20).

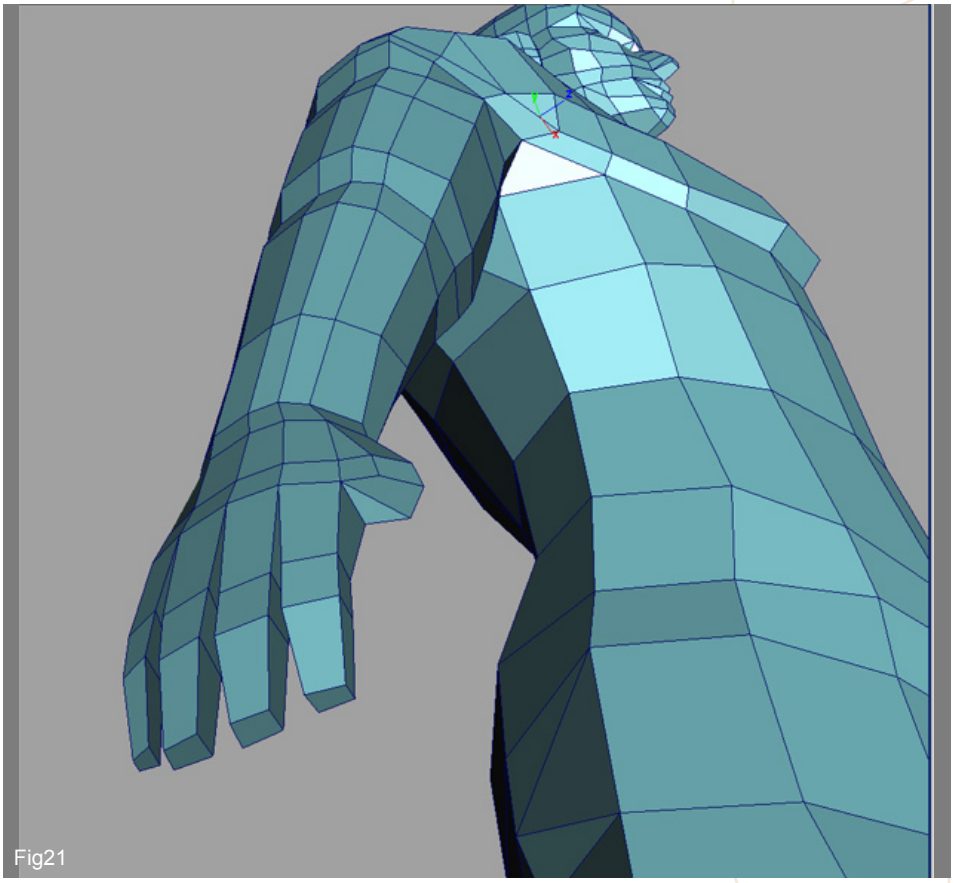


Fig21

Rearrange the verts to get a nice shape for the fingers and extrude them downwards twice, and you should have done the fingers well, as shown in Fig21 and Fig22

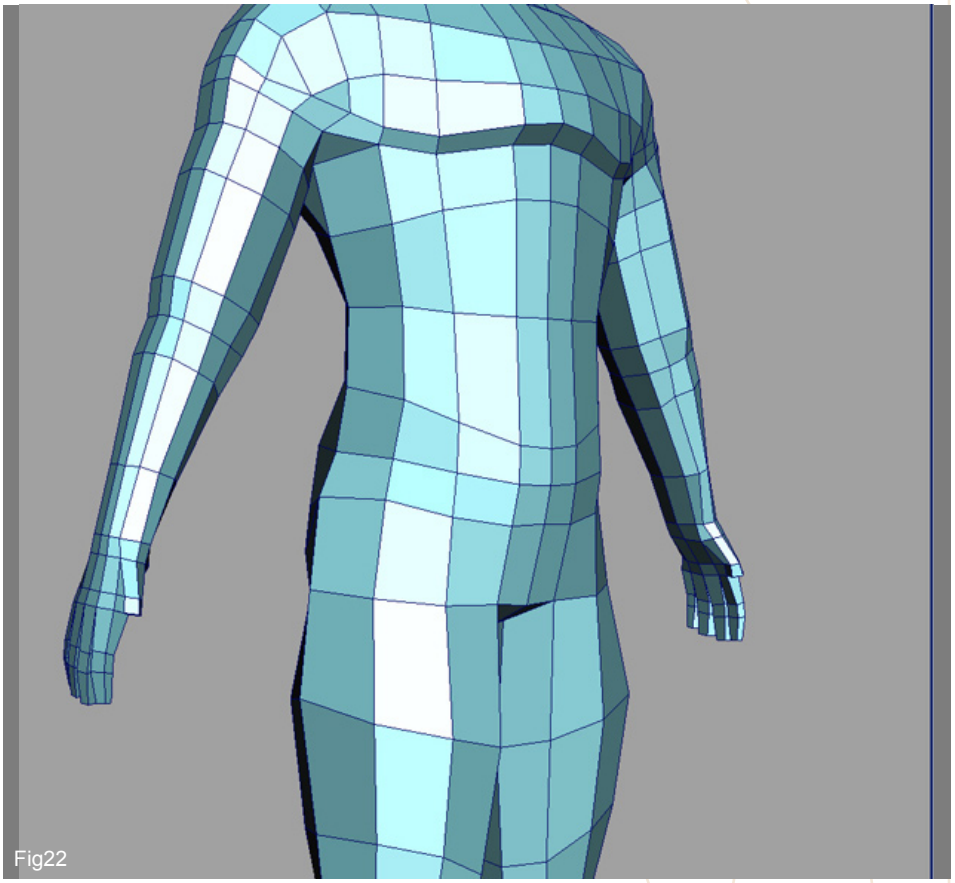
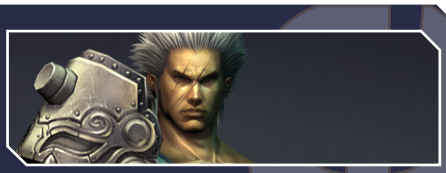


Fig22



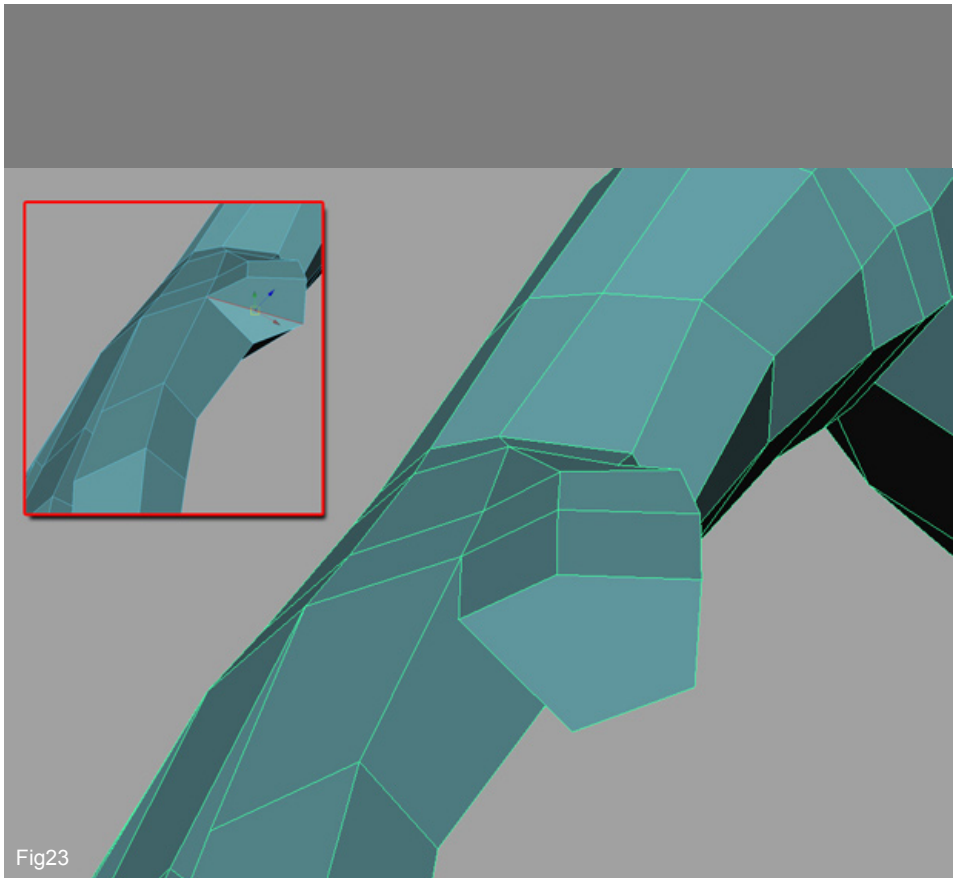


Fig23

20. Let us go to the thumb now. First we're going to get rid of the red edge and we'll extrude the remaining face downwards once (Fig23).

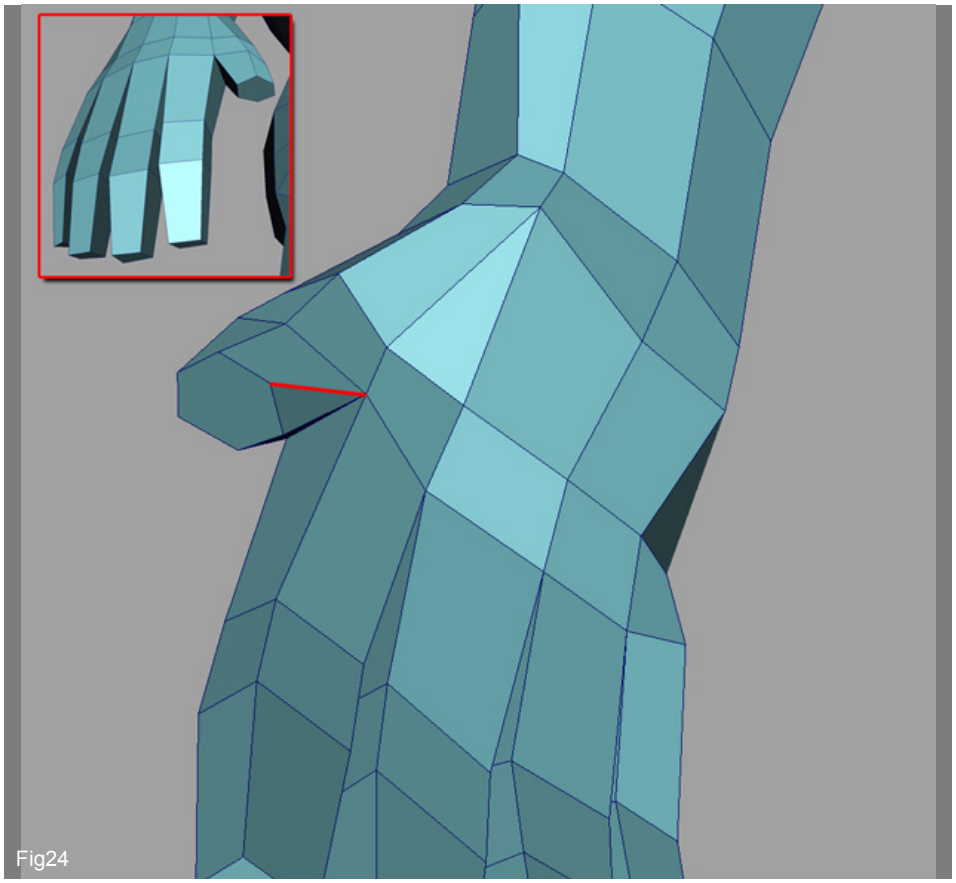
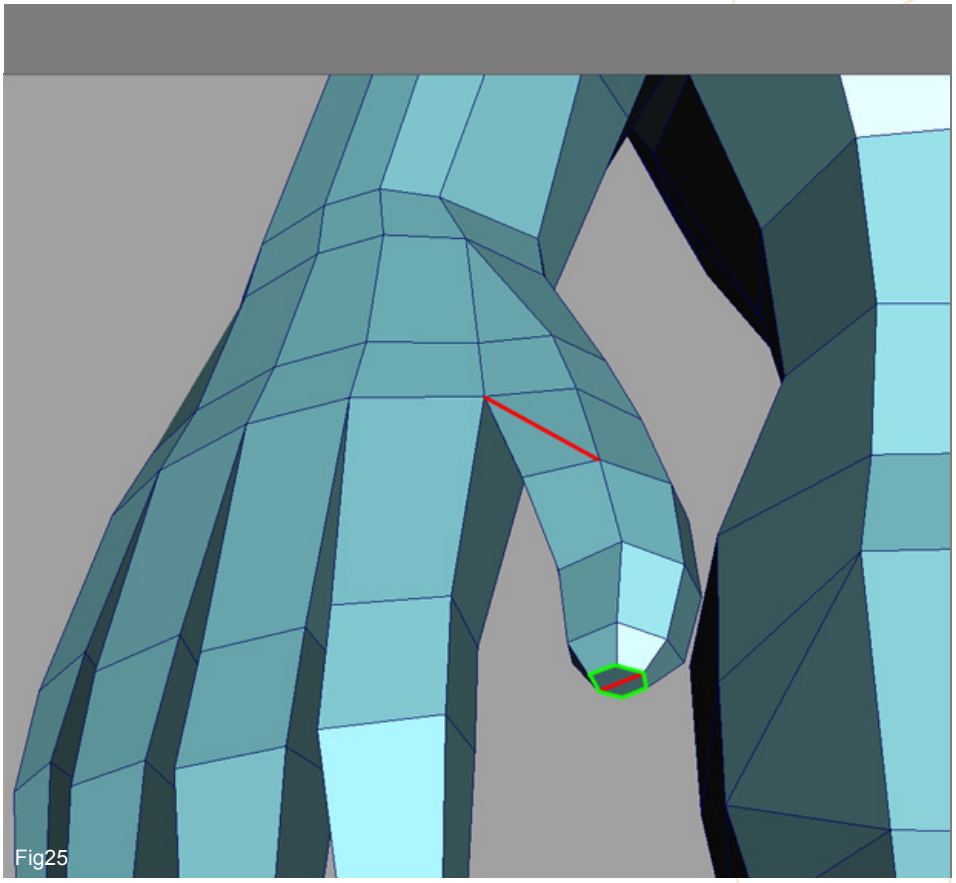


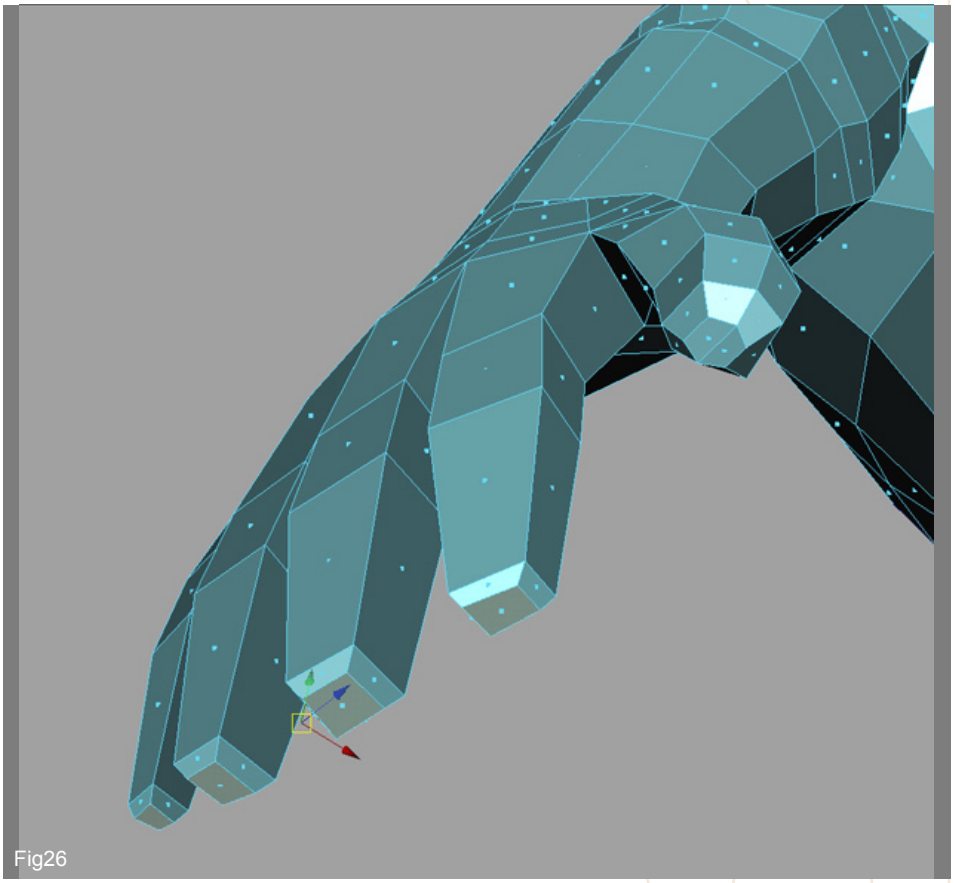
Fig24

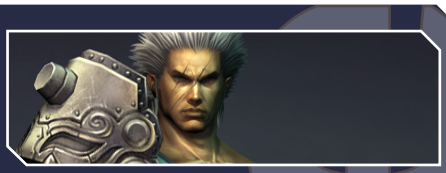
21. Now I'm going to add one edge, as shown in Fig24, in order to have a hexagon for the thumb and I am going to arrange the vertices to have a nice shape for my thumb (Fig24).

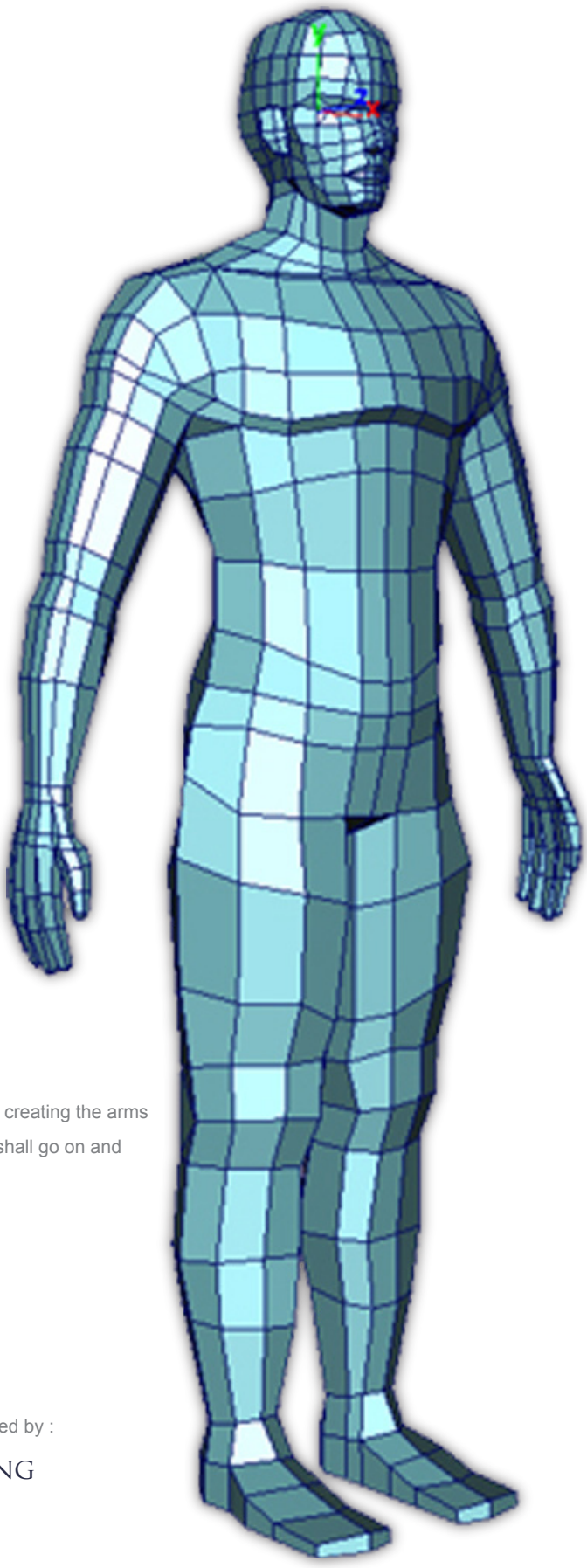
22. Select the face surounded by the green edges as in Fig25, and extrude it down, as in the image. Rearrange the verts to get a nicely defined shape for the thumb. Also, after extruding and reshaping, I have added two more edges, marked in red in Fig25, for a good surface deformation for when it will be animated.

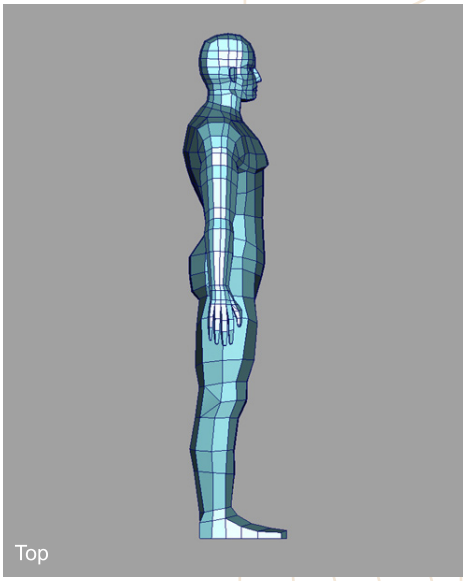

Fig25

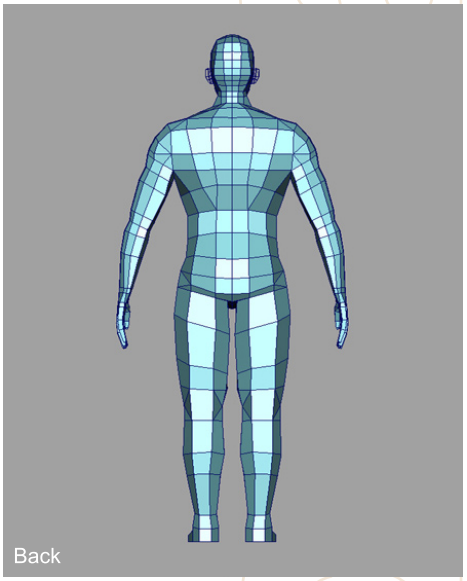
23. Now we just have one more step to do and we're done. Take the lowest faces from the fingers and extrude them downwards once, scale them a little bit insides and now we can say that we've finished, for now! (Fig26).

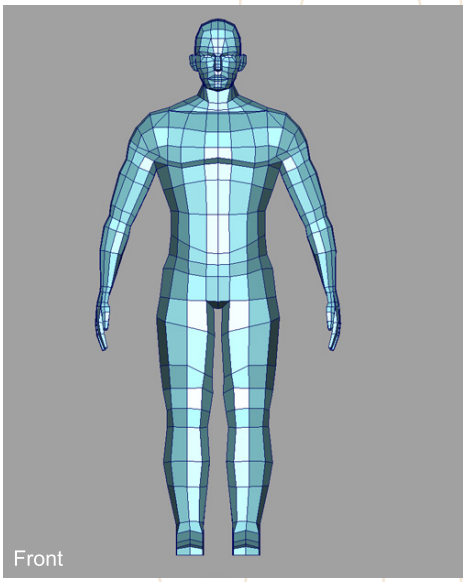

Fig26











This concludes the tutorial on creating the arms and legs and next month we shall go on and add clothing and hair.

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The Swordmaster

SOFTIMAGE® | XSI

Is our new precise, step by step tutorial for a highly polished, low polygon game character with detailed texturing for real-time rendering. We have had the tutorial created for the 5 major 3d applications, but even if you are not a user of one of them, the principles should be easily followed in nearly all other 3d applications. Over the next 8 months we will outline in detail the process for creating the 'Swordmaster' you see on the left. The schedule for the different parts of the tutorial is as follows:

Issue 009 May 06

Modeling the Head

Issue 010 June 06

Modeling the Torso

Issue 011 July 06

Modeling the Arms & Legs

Issue 012 August 06

Modeling the Clothing & Hair

Issue 013 September 06

Modeling the Armour

Issue 014 October 06

Mapping & Unwrapping

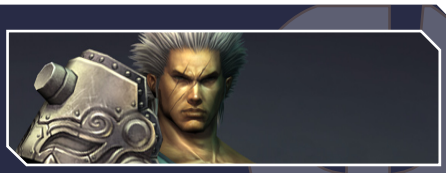
Issue 015 November 06

Texturing the Skin & Body

Issue 016 December 06

Texturing the Armour & Clothing

Enjoy ...



Part Three
Modeling the Arms & Legs

Introduction:

In this part of the Sword Master tutorial we will start with the torso, built in the second part, and we will create the arms and legs. If you followed the previous two parts of the tutorial, you should have the torso mesh ready.

1. Open the file with the torso mesh. Select the two edges marked in red in Fig 01, and use the Ctrl + D to duplicate/extrude them. Now move them downwards, as shown in Fig 01. Make sure that the torso mesh is still divided into two halves, one of which is still a clone of the other (so you can work only on one half of the mesh, seeing the result on both of the halves).

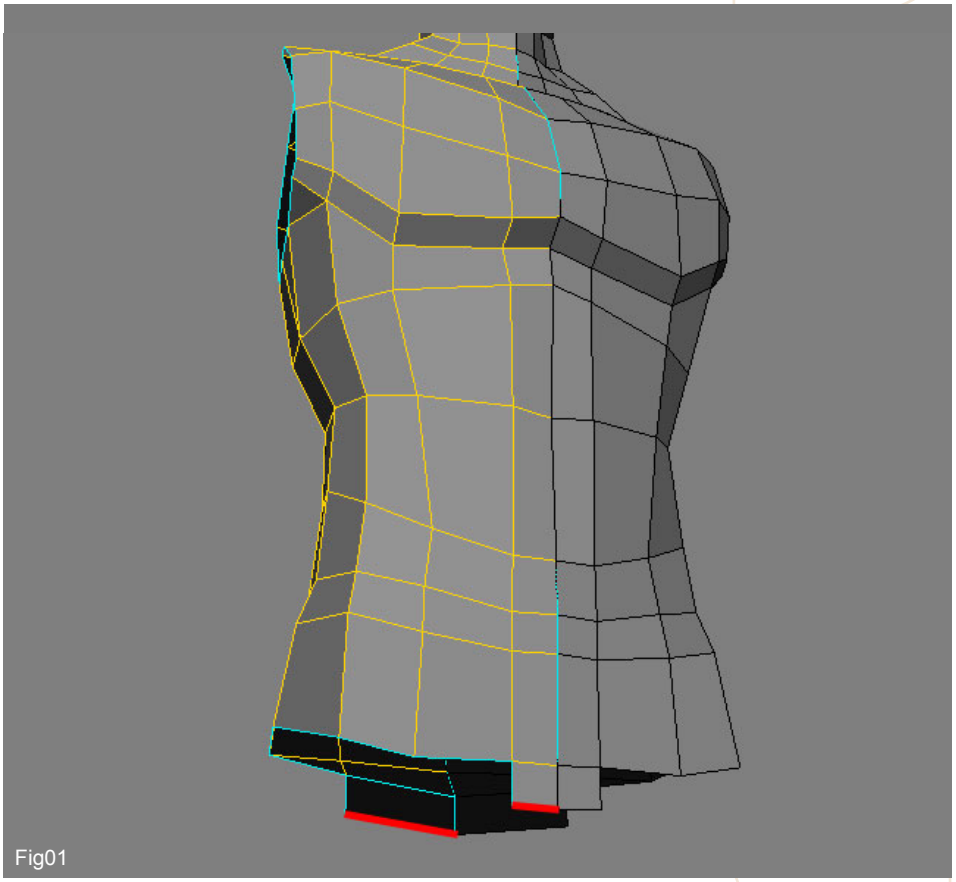


Fig01

2. Move these edges inwards, as shown in part 1 of Fig 02. Now (with the two edges still selected), use the Bridge Boundary Edges to create a new poly (marked in red in part 2 of Fig 02) between them.

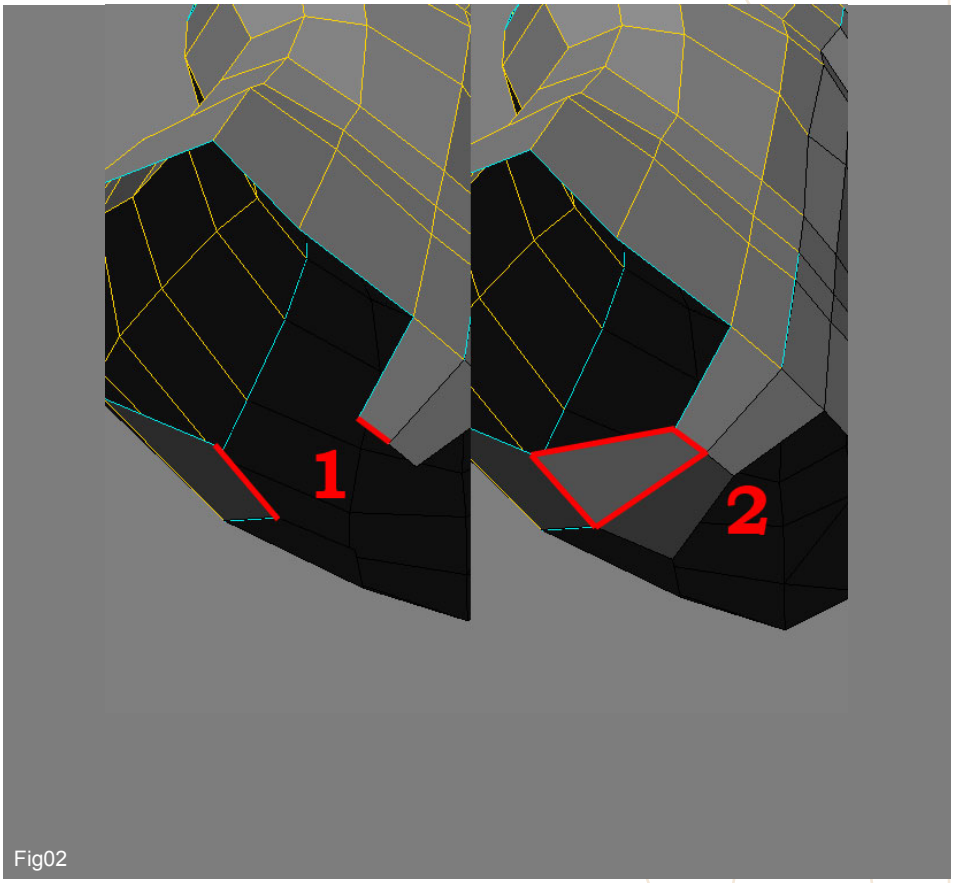


Fig02

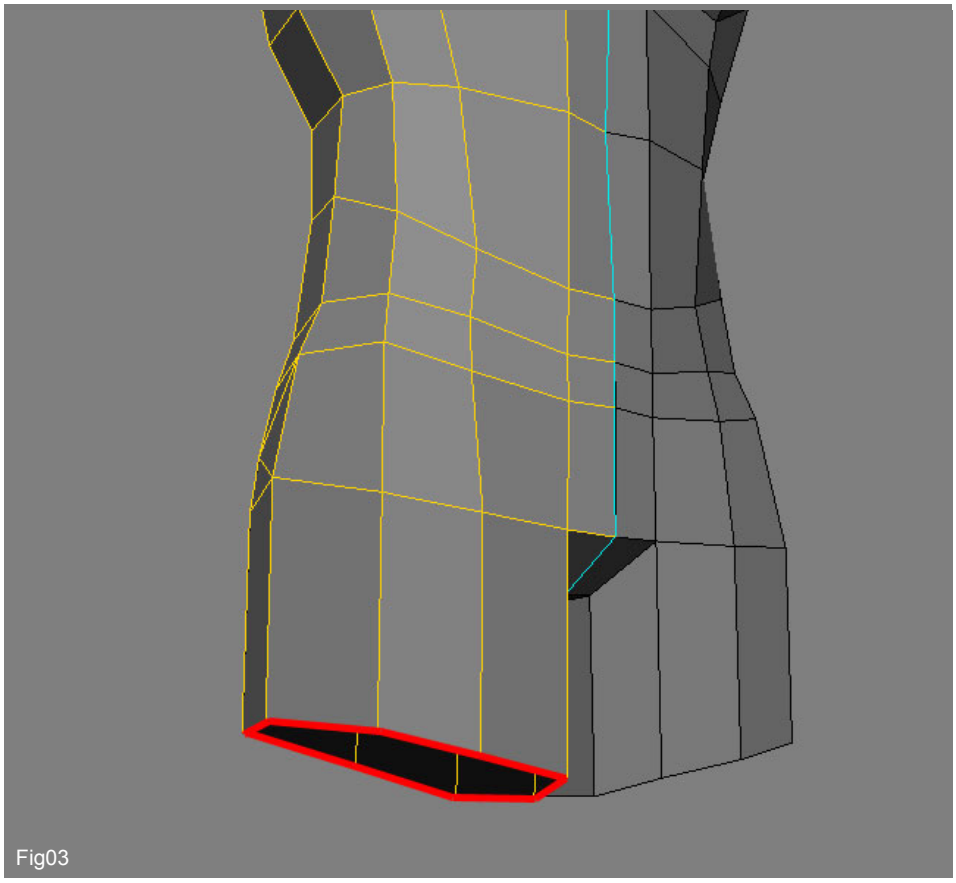


Fig03

3. Check if the vertices need some adjustments. Once you have a nice and clean mesh, select the edges shown in Fig 03 and duplicate/extrude them downwards (Ctrl + D), just like we've done before.

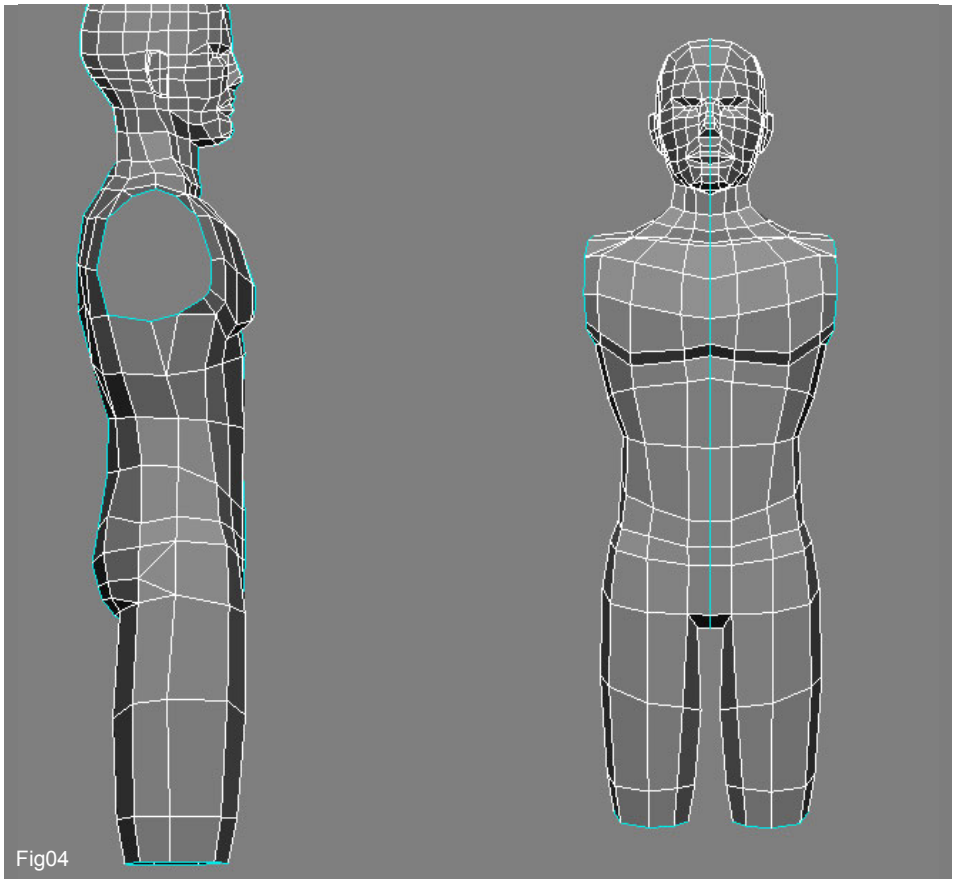
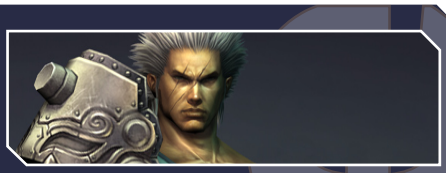


Fig04

4. Extrude the edges twice more, down to the knee area (Fig 04). Don't forget to adjust the vertices every time you extrude, so as to always have a clean mesh and a nice shape for the leg.



5. Again, using the same technique, extrude the edges downwards to the ankle, as shown in Fig 05. After each extrusion, take some time to adjust the vertices, according to the anatomy of the leg.

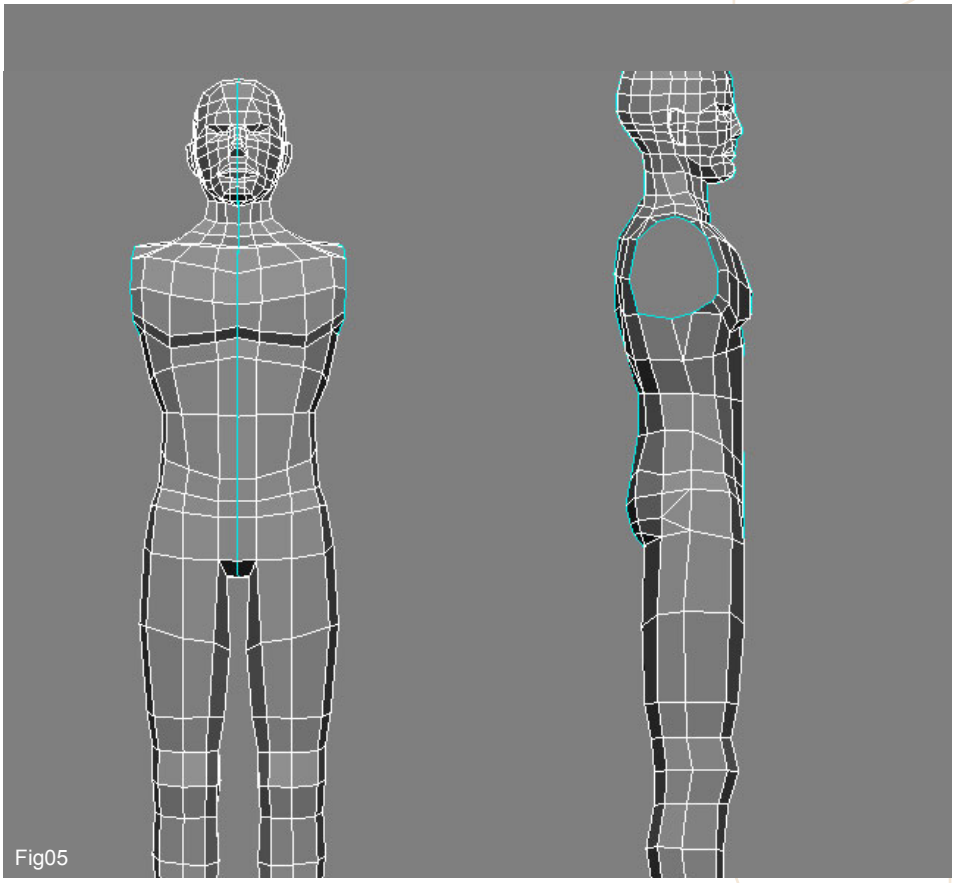


Fig05

6. To create the foot, we need to close the base of the leg (which is still open, due to the extrusions we have made). There are different ways to close a hole in a mesh, but for this time we can just create three new polygons, as shown in Fig 06.

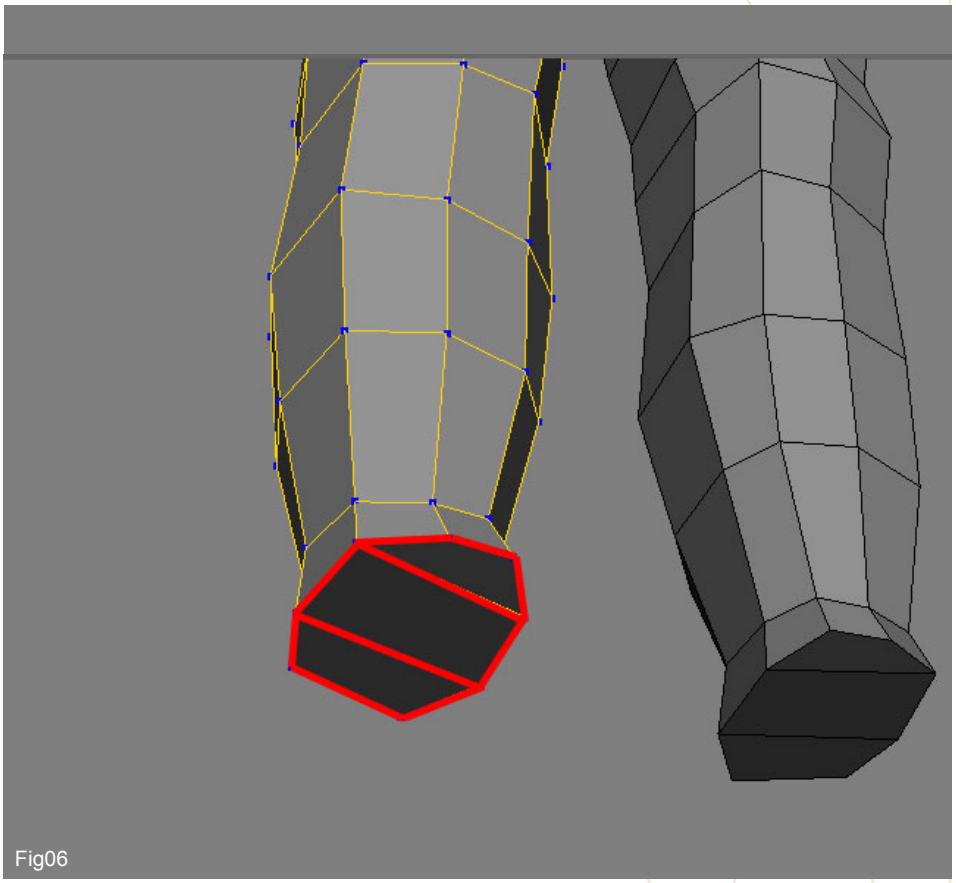


Fig06

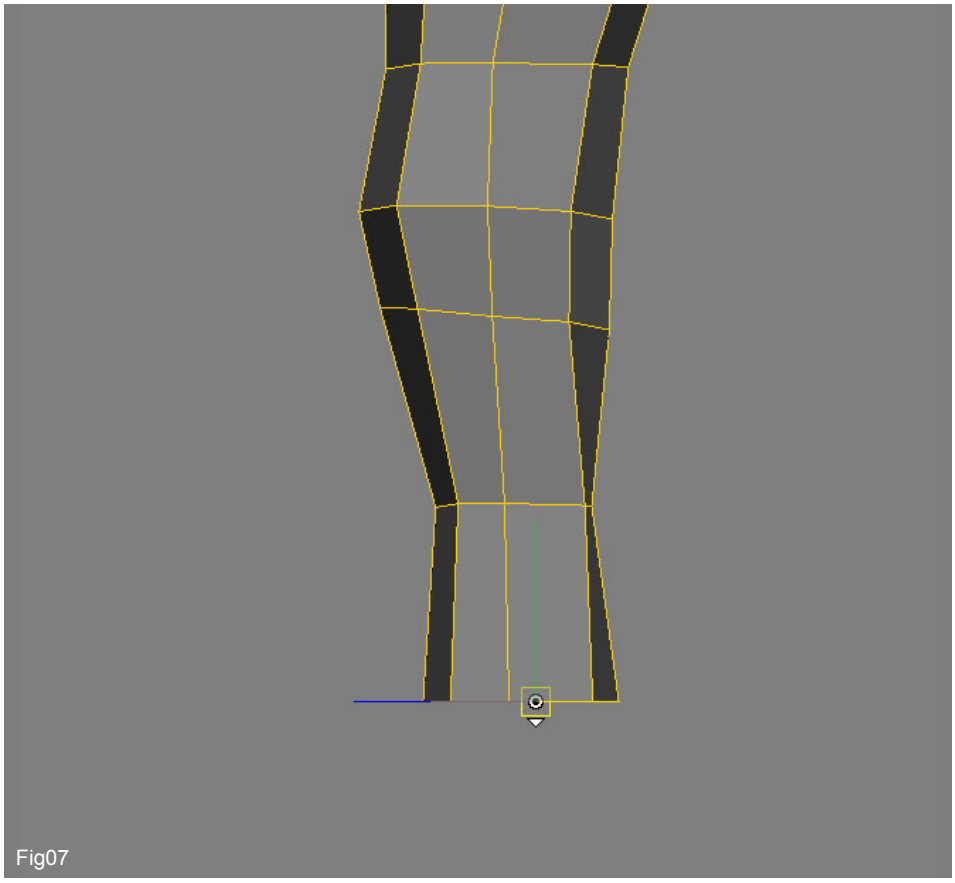


Fig07

7. With the three new polygons still selected, use the Scale tool to scale them down on the Y axis, so as to make them “flat”. (Fig 07).

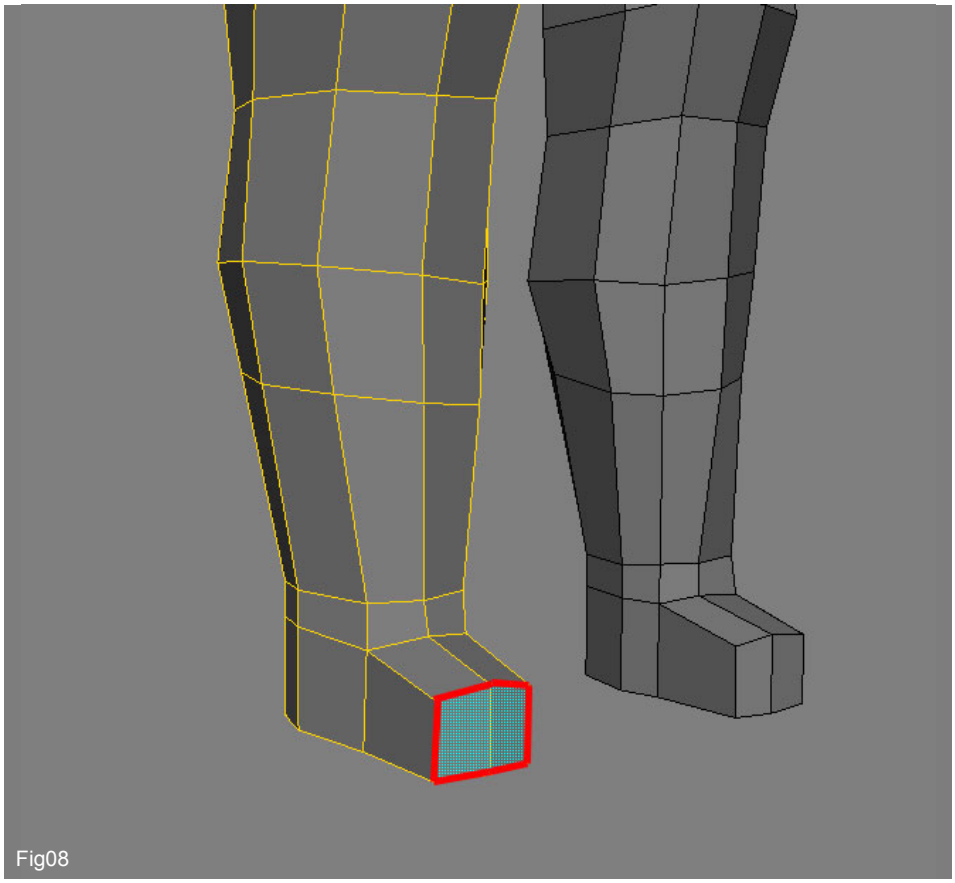
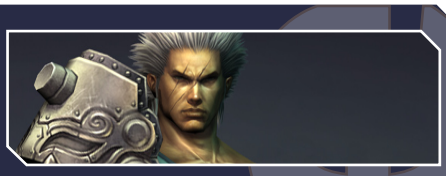


Fig08

8. Let’s start creating the foot, extruding the two front polygons and scaling them down a bit, as shown in Fig 08.



9. Extrude the two polygons again, and add a new cut (shown in red in Fig 09) to create a better curvature. Also, take some time to adjust the shape of the foot.

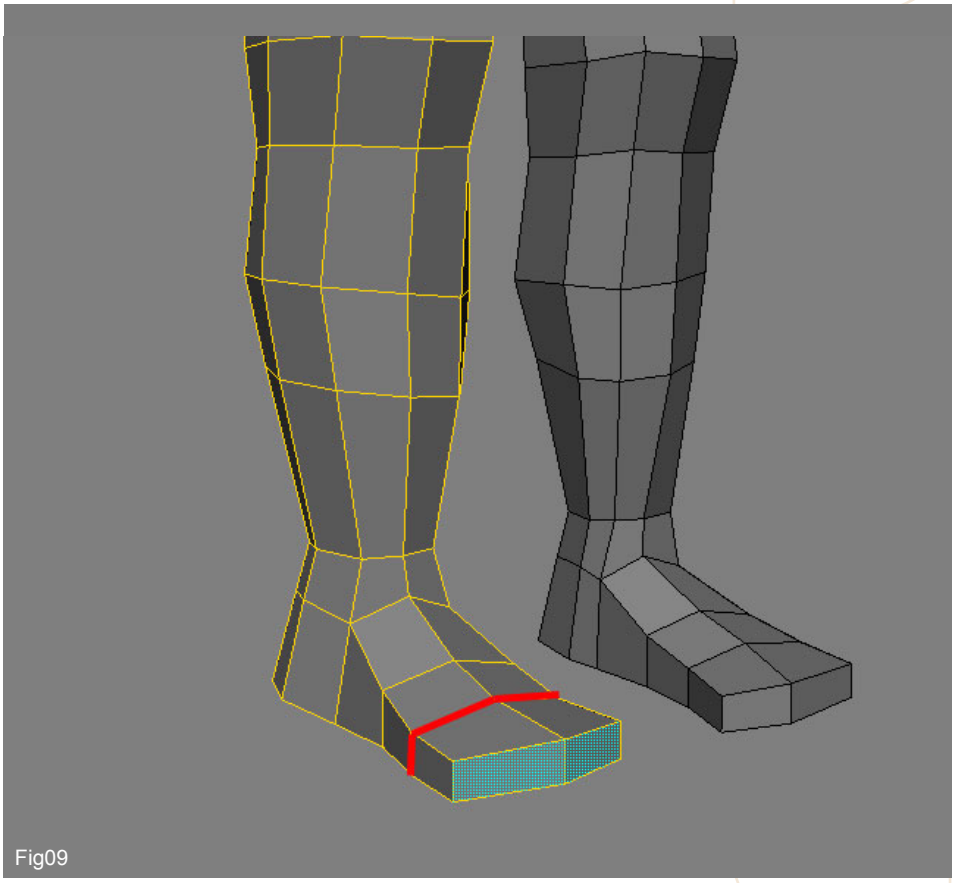


Fig09

10. Now that we have the leg and the foot done, we need to adjust one thing in the knee area. This is to obtain better deformations while animating. First of all, add two new cuts (marked in green in Fig 10) in the back of the knee. Then select the edges marked in red in Fig 10 and use the Dissolve & Clean Adj. Vertices command to remove these edges and their vertices.

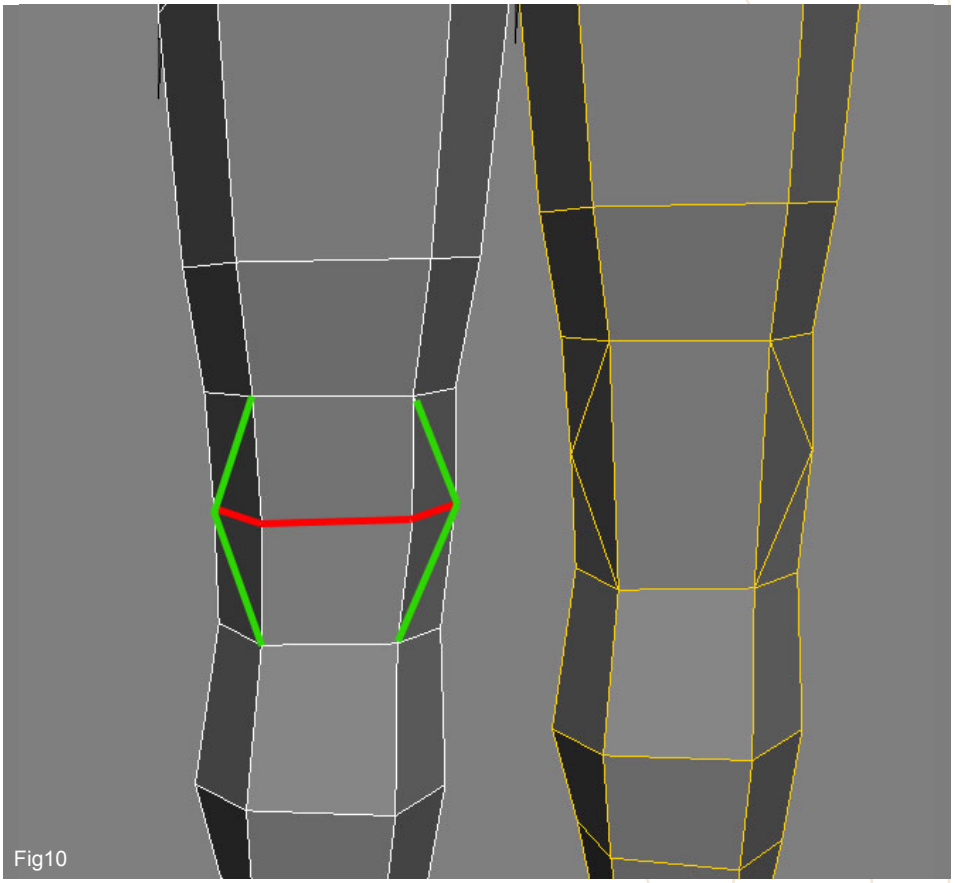
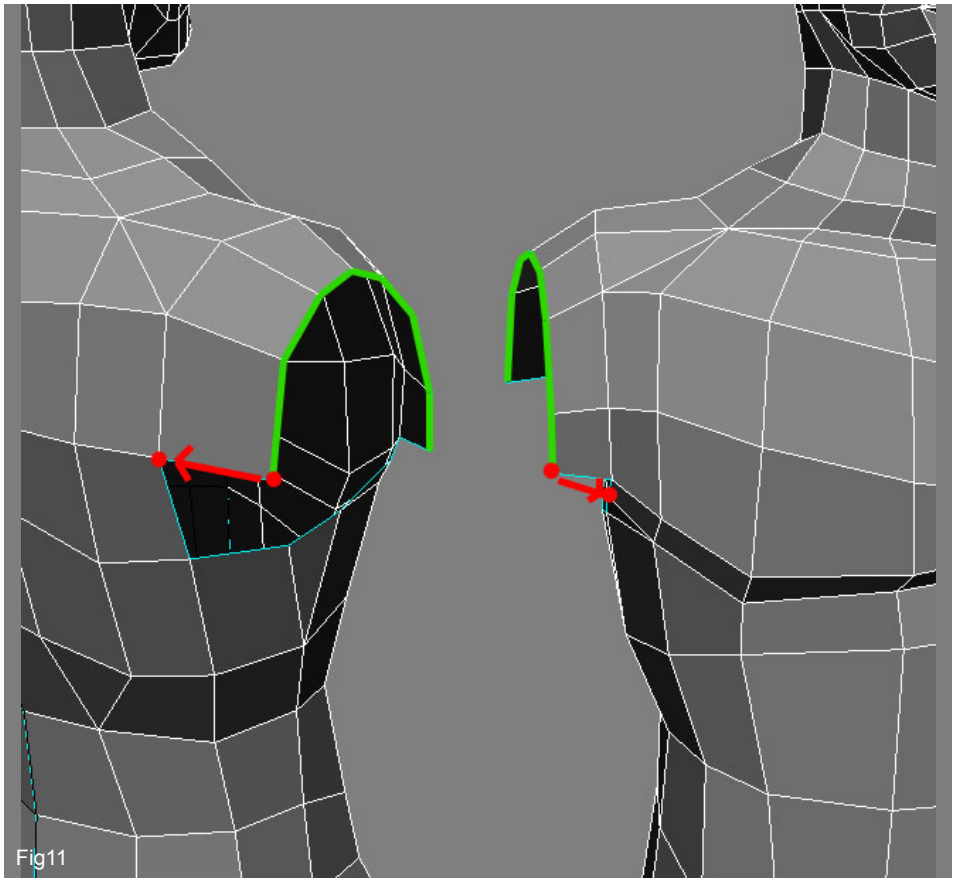
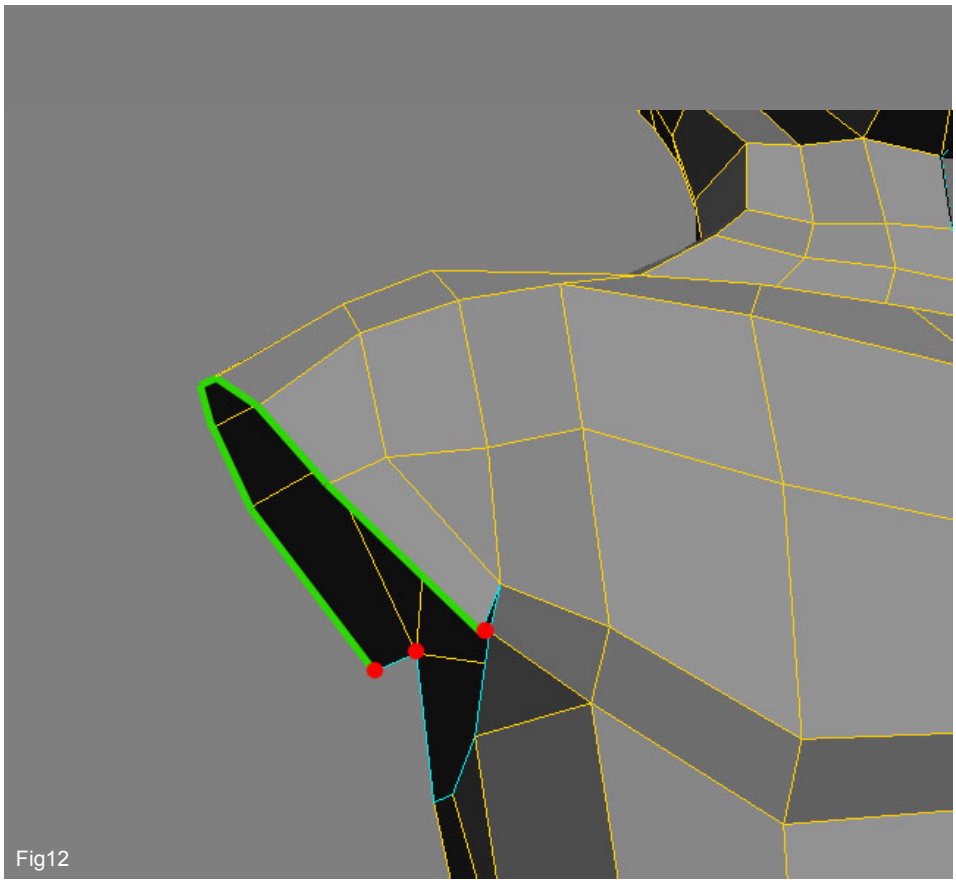


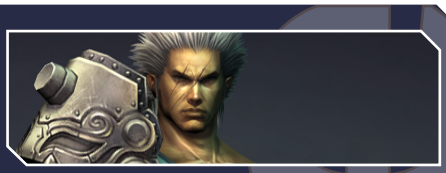
Fig10


Fig11

11. Time to go on with the arms. Select the top seven edges marked in green, in Fig 11, and Duplicate/Extrude them, moving them outwards. Select the vertices marked in red, in Fig 11, and weld them to their neighbours (follow the red arrows in Fig 11 to understand this task).


Fig12

12. Just like the previous step, extrude the edges once again (green contour in Fig 12) and weld the vertices (marked in red in Fig 12 to their neighbours).



13. Extrude the edges once again, but this time deselect the first edge (the one closest to the chest) before extruding (edges to extrude are marked in green in Fig 13). Now weld the vertices marked in red, in Fig 13, following the red arrows in Fig 13 to choose the order of welding. Also, add a new cut, as shown in yellow in the right part of Fig 13.

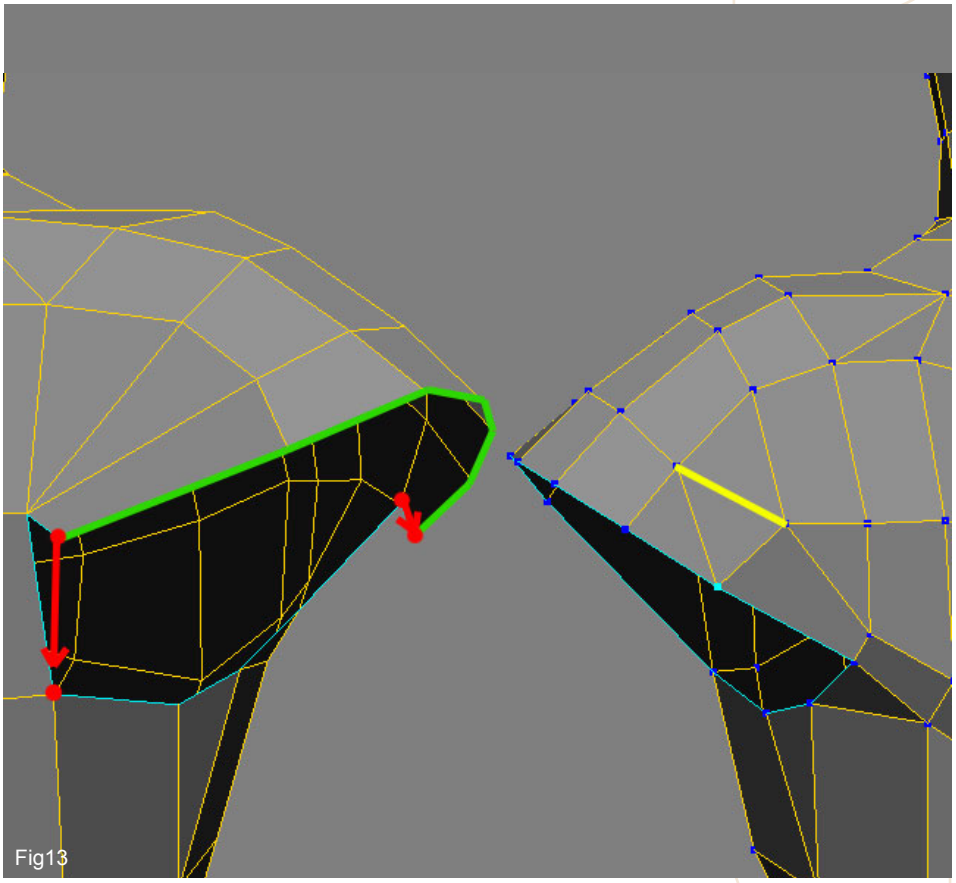


Fig13

14. Add a new cut (marked in red in Fig 14) in the polygon on the back. Then select the edge loop (marked in green in Fig 14) and Duplicate/ Extrude it to start creating the arm itself.

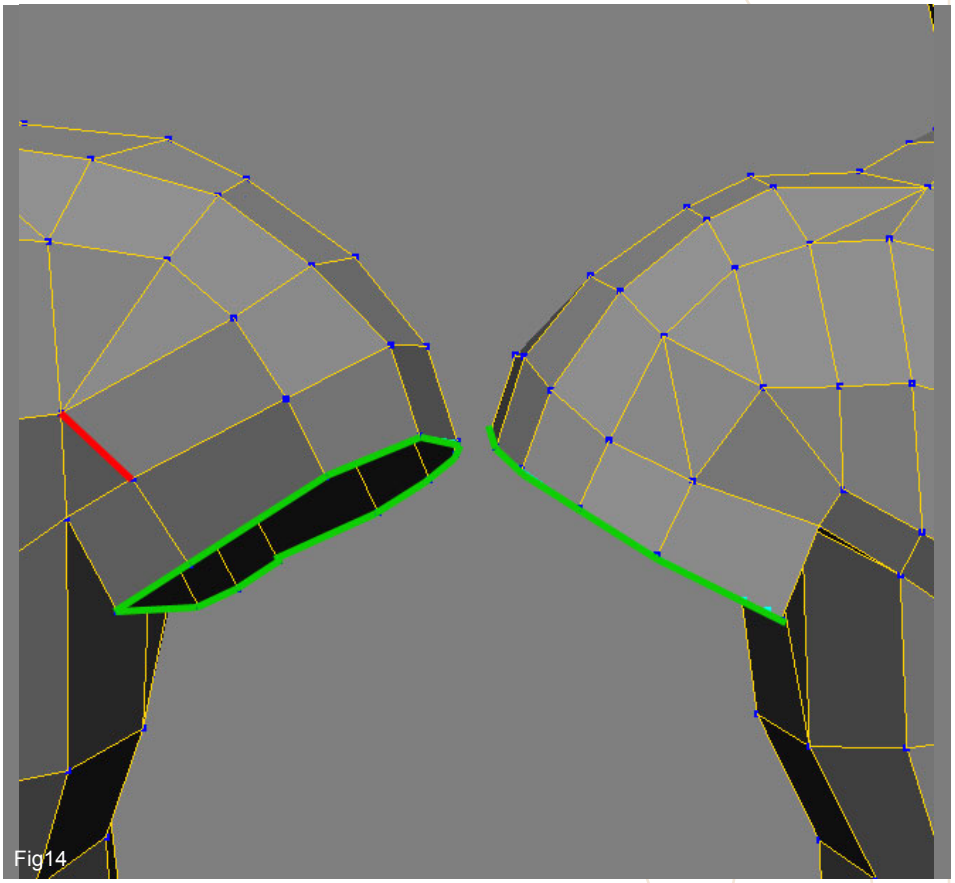


Fig14

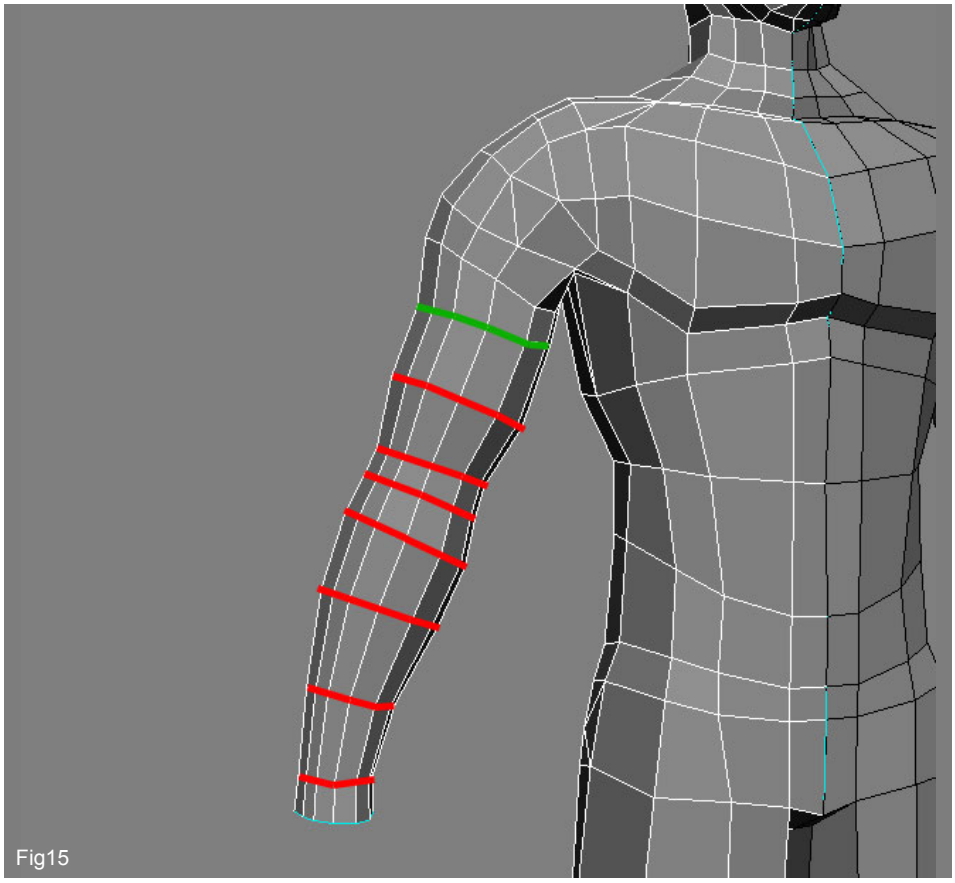


Fig15

15. Once we have the starting piece of the arm, we can just extrude the edge loop several times to create the full arm. In this case, eight new extrusions were needed to complete the arm. Don't forget to adjust the vertices after every new extrusion; it is easier to do so, than to make all the extrusions and adjust the vertices later!

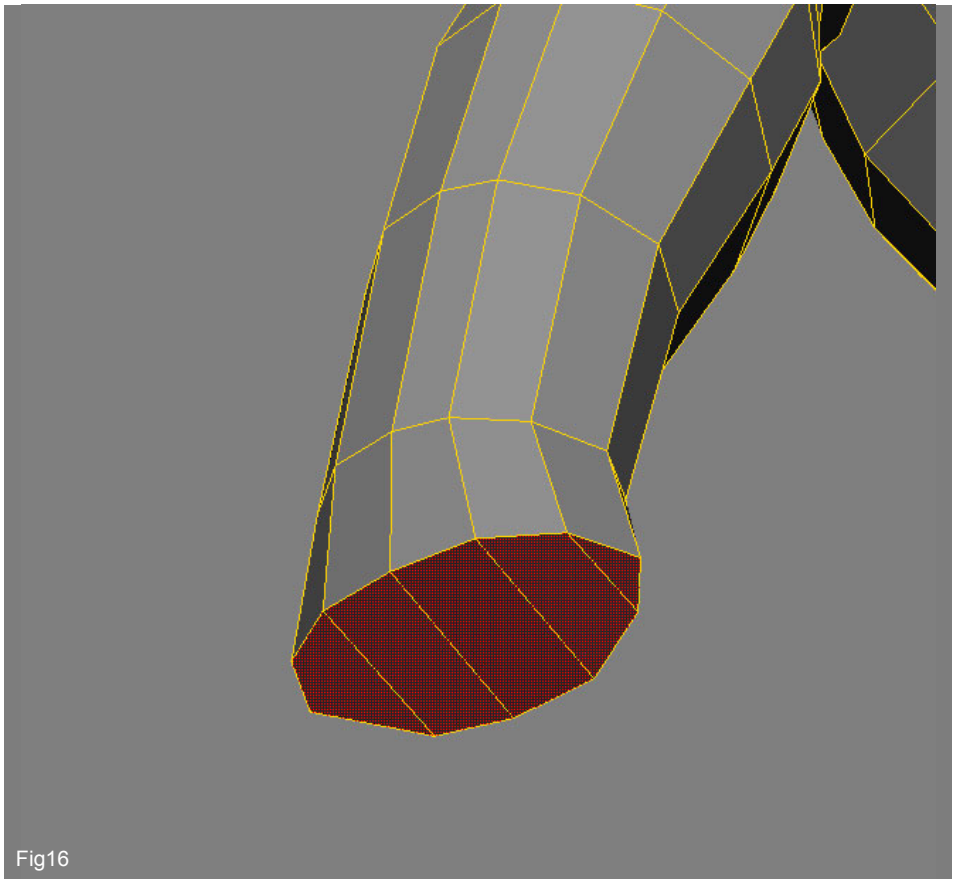
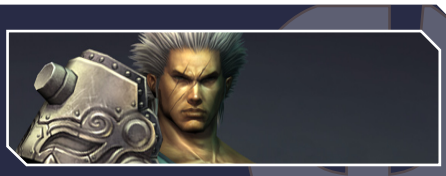


Fig16

16. Now close the hole at the end of the arm, creating new polygons (Ctrl + N). As you can see, there's a small triangle needed to close the hole. Forget about it for the moment.



17. Select the two right most vertices of the hand, and move them outwards. This is needed to prepare for the extrusion of the hand itself.

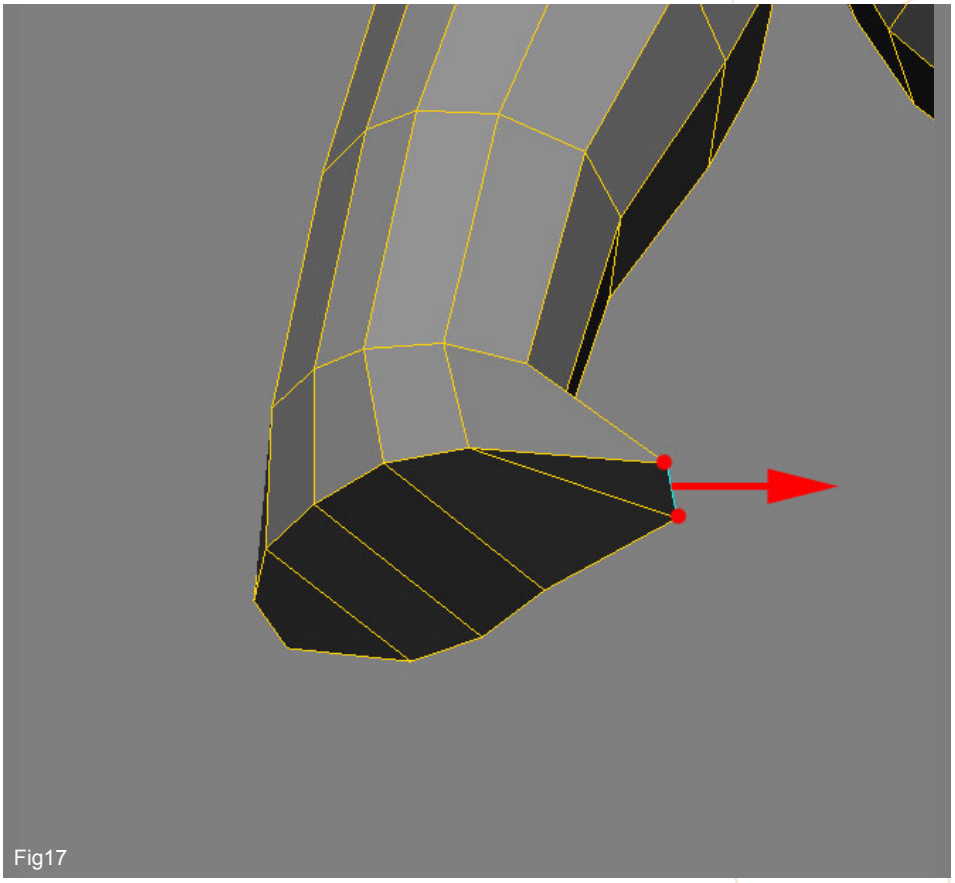


Fig17

18. Now add a cut in the position marked “1” in Fig 18. Continue the loop and add another cut in the palm side of the hand, marked with “2”. Finally, add a third cut in, as in position “3” in Fig 18. This will help to obtain a better curvature for the hand.

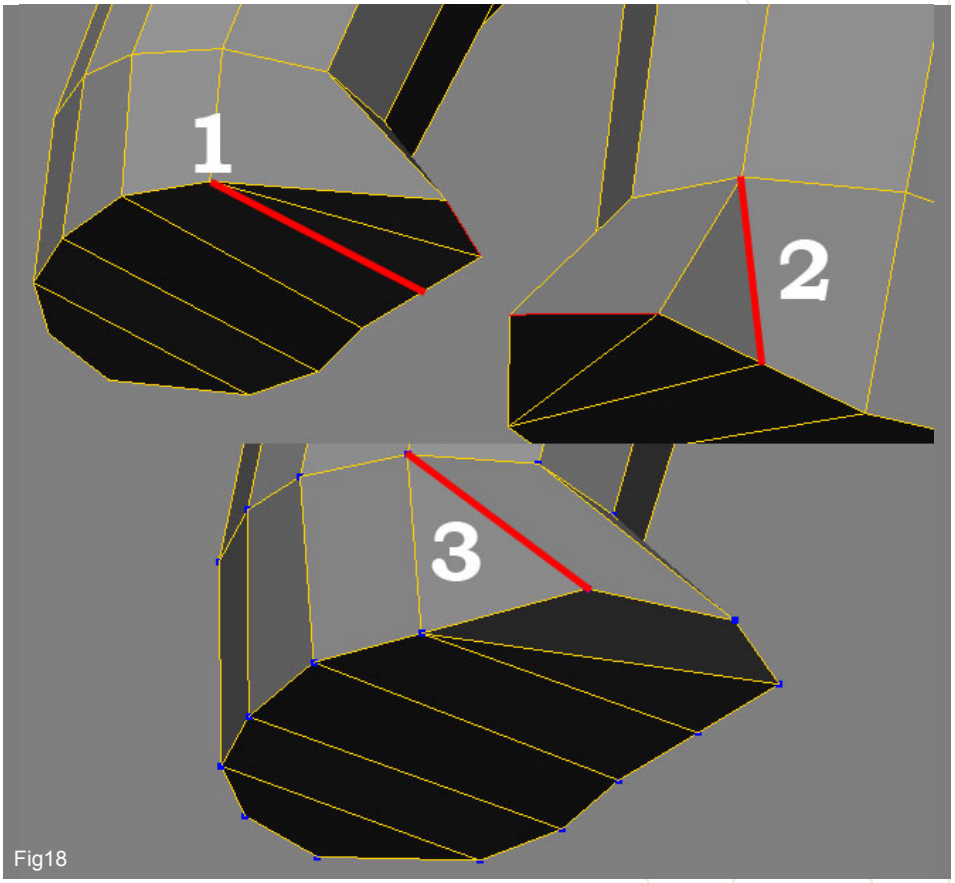


Fig18

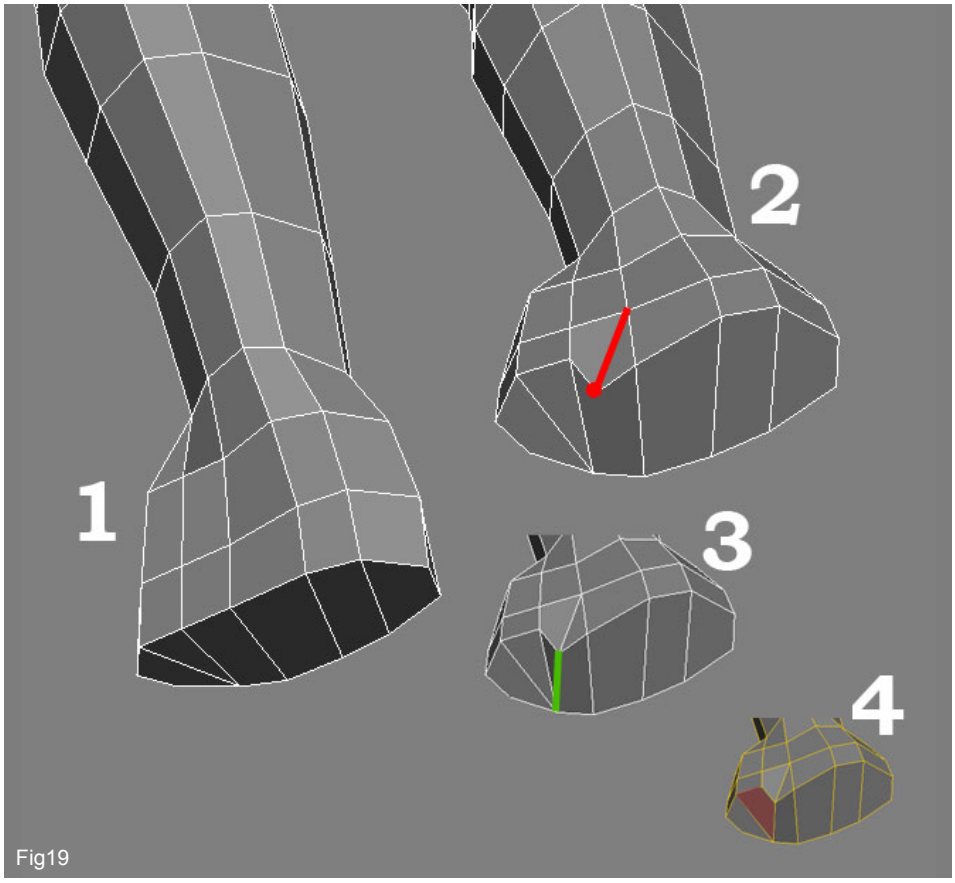
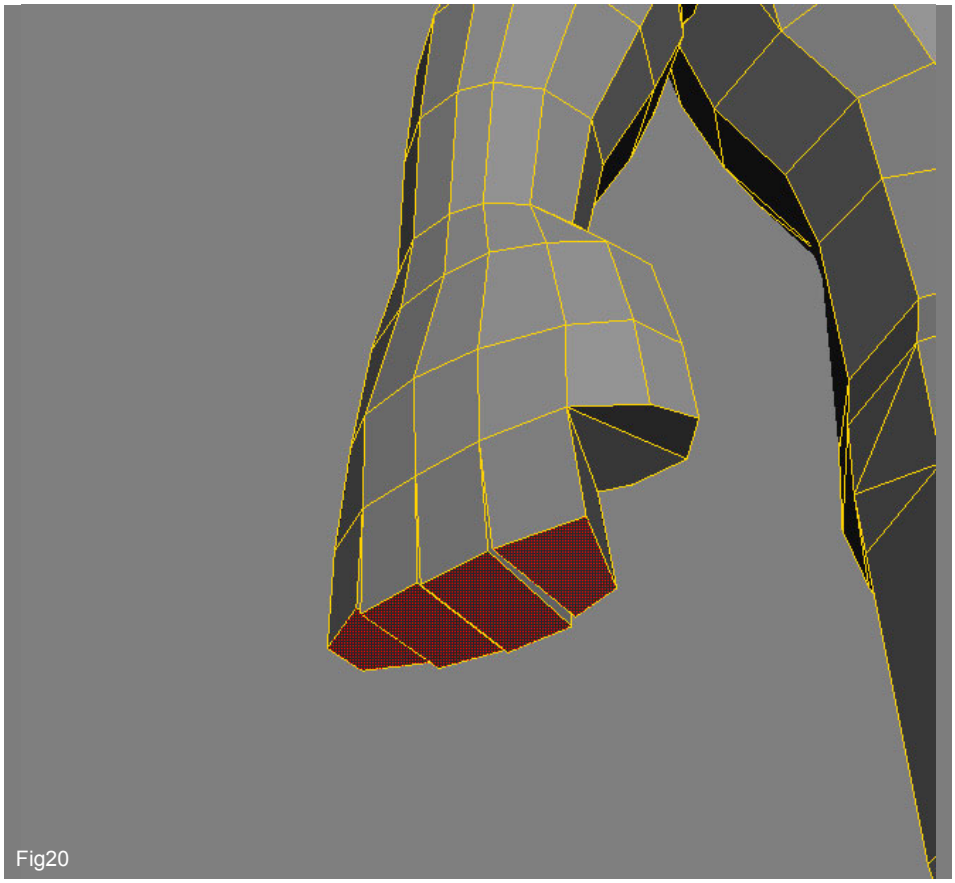
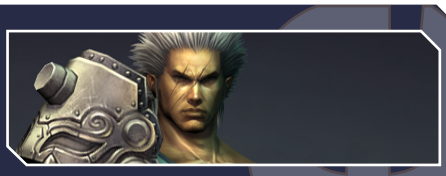


Fig19

19. In part 1 of Fig 19 you can see a couple of extrusions for the hand. Before we can continue with the fingers, we need to rearrange the mesh. Create the cut shown in part 2 of Fig 19 (marked in red); then move the resulting vertex a bit inward, to create a better curvature. Create the cut marked in green in part 3 of Fig 19, and finally remove the edge to eliminate the triangles, as shown in part 4 of Fig 19.


Fig20

20. Now we can extrude the fingers, as shown in Fig 20.



21. Keep extruding and rotating polygons until you have all the four fingers complete, like shown in Fig 21.

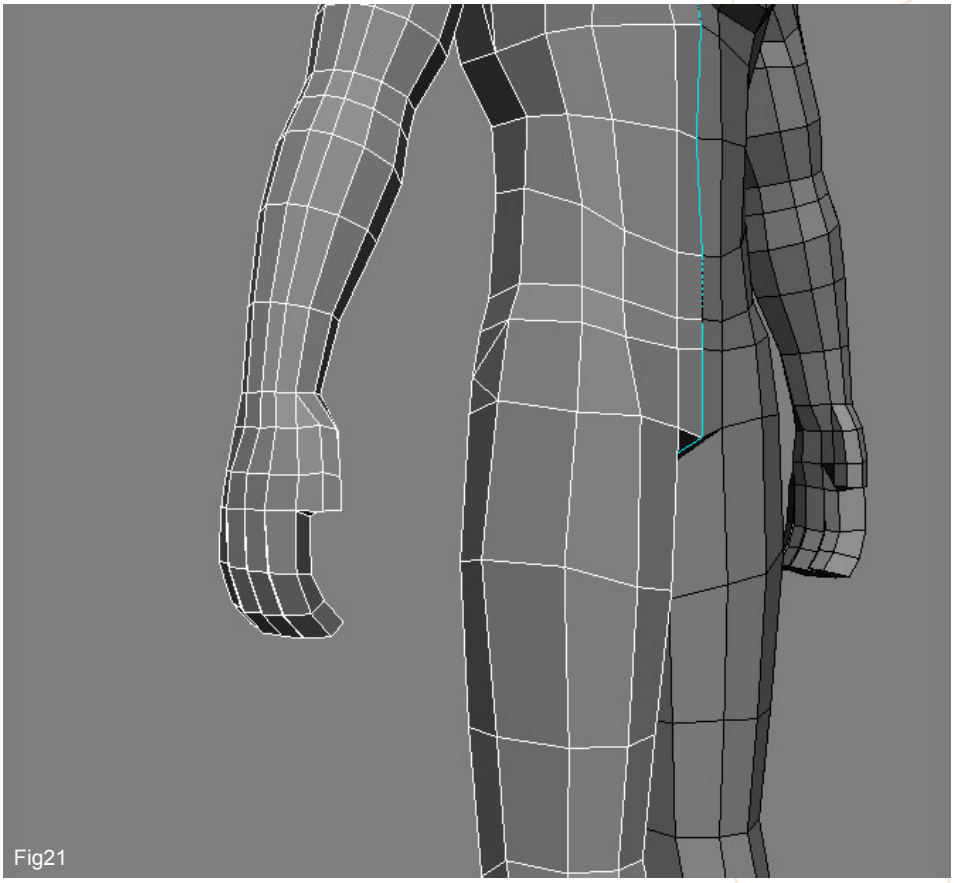


Fig21

22. Now it's time to extrude the thumb. Adjust the vertices if needed, to get a better shape before extruding. Then extrude the polygons (green contour in Fig 2), and finally add the cut marked in red in Fig 22.

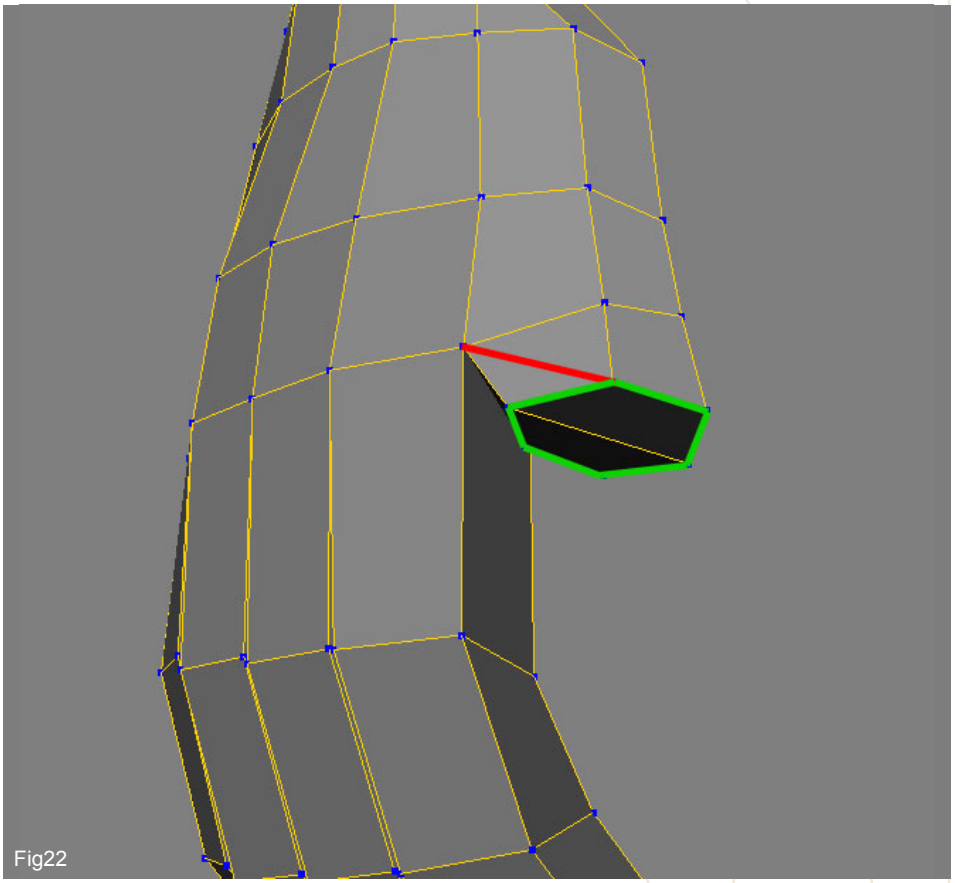


Fig22

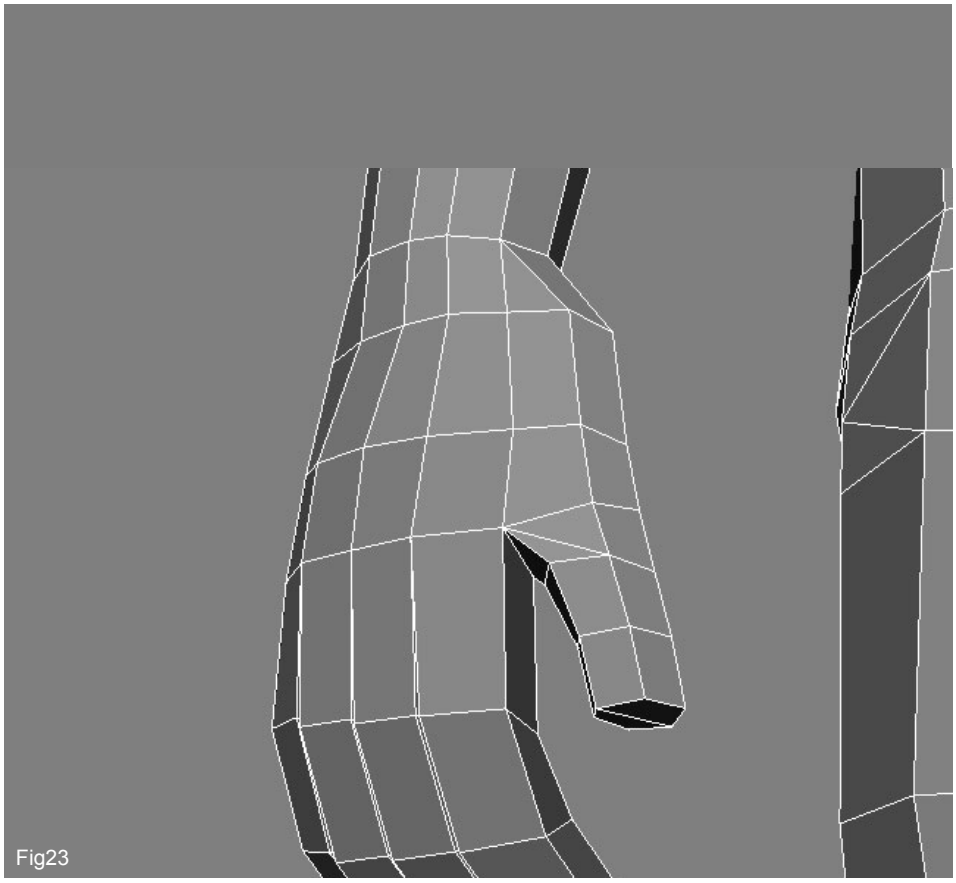


Fig23

23. Now you can complete the extrusion of the thumb, as shown in Fig 23.

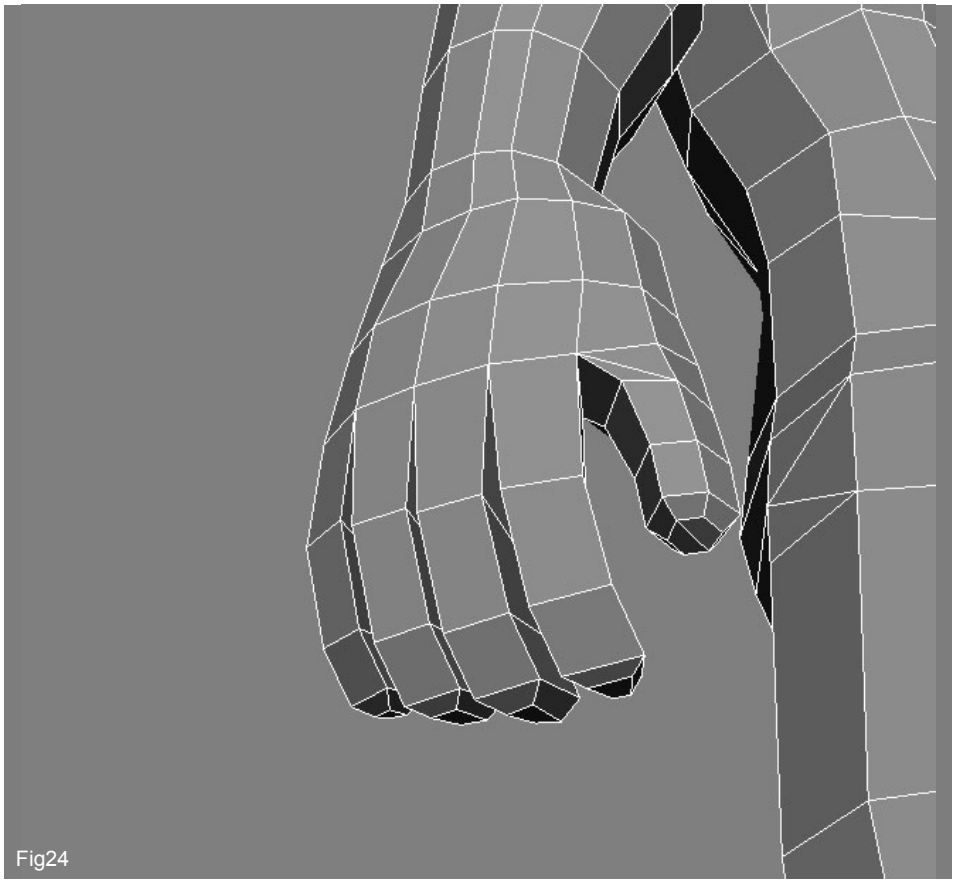
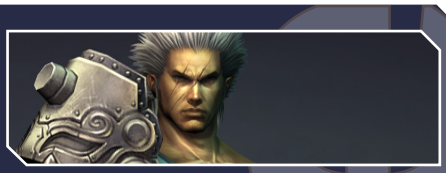
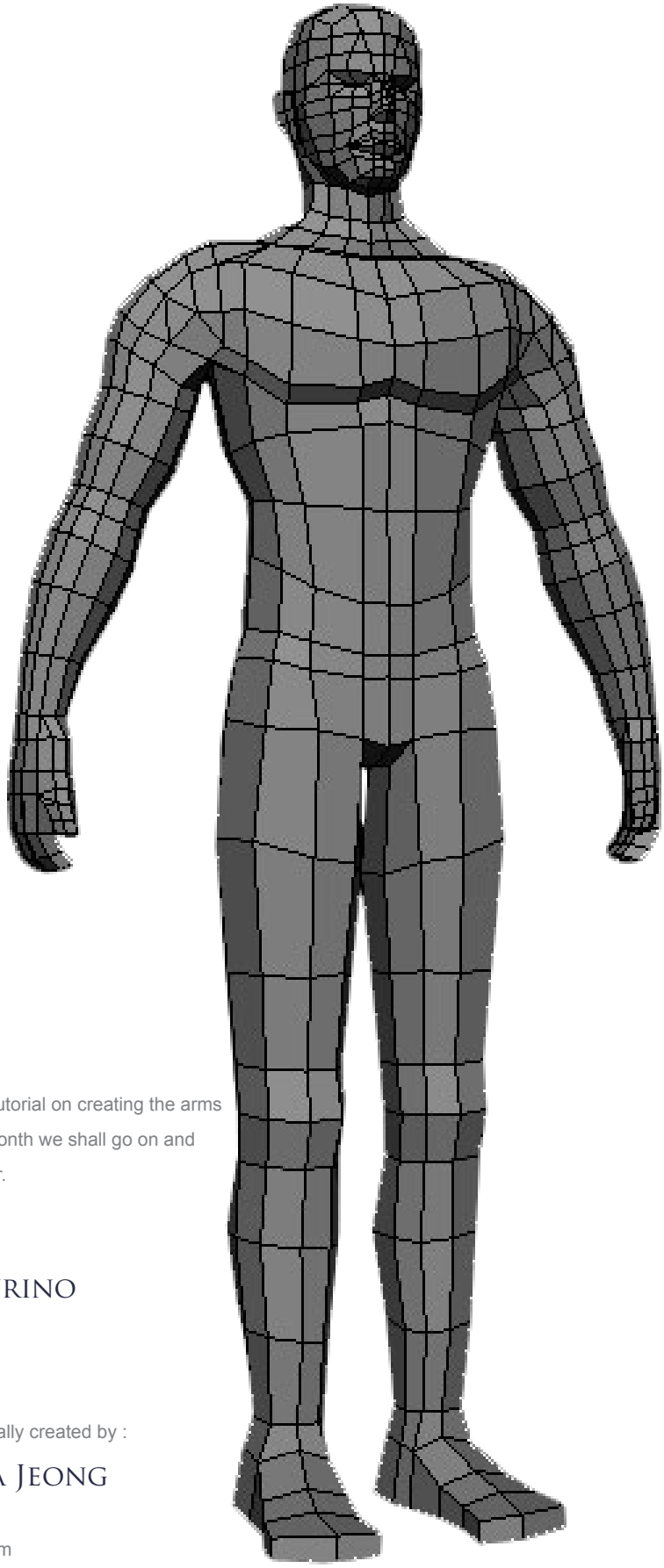
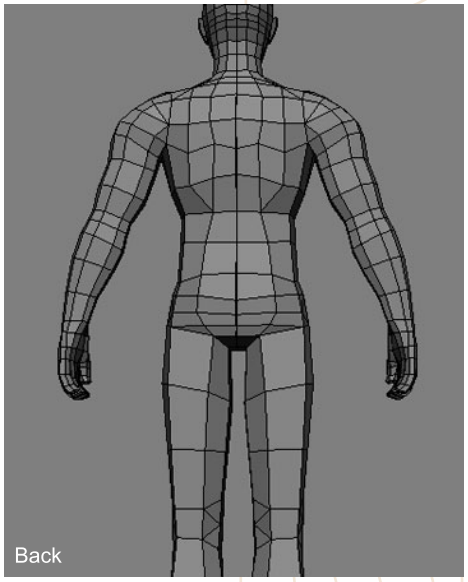


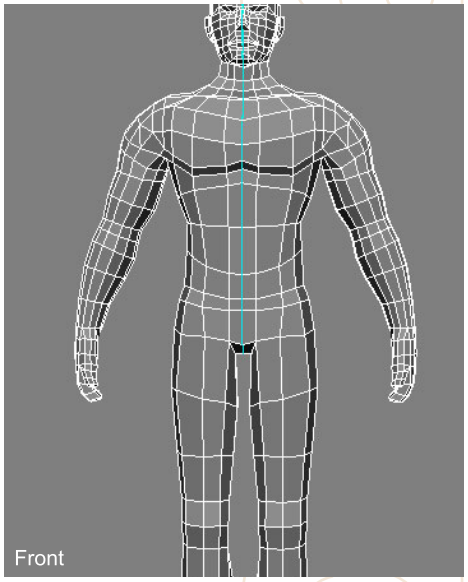
Fig24

24. The final touch: add a Bevel operator to every single polygon at the end of the fingers. For the thumb, first select both the polygons at the end of the thumb and then use the Bevel operator.









This concludes the tutorial on creating the arms and legs and next month we shall go on and add clothing and hair.

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